

D 101.11:5-1349

TM 5-1349

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

SCRAPER, ROAD
TOWED-TYPE
CABLE-OPERATED
OPEN BOWL, 12 CU. YD.
4 WHEELS
WOOLDRIDGE MODEL OS-122A



DEPARTMENT OF THE ARMY • NOVEMBER 1953

GO 1766A—Nov. 270469°—53

Digitized by Google
MICHIGAN



D 101.11i

CHAPTER 3. ORGANIZATIONAL, ETC.—Continued

	Paragraph	Page
Section VIII. Bottom and Apron		
Bottom.....	37	25
Apron.....	38	26
IX. Blade Base and Blades		
Blade base.....	39	26
Blades.....	40	26
X. Wheels and Tires		
Wheels.....	41	27
Tires.....	42	28
CHAPTER 4. LIMITED STORAGE, SHIPMENT, AND DEMOLITION TO PREVENT ENEMY USE		
Section I. Limited Storage and Shipment		
Limited storage.....	43	29
Shipment.....	44	29
II. Demolition of Scraper to Prevent Enemy Use		
General.....	45	29
Preferred demolition methods.....	46	29
Other demolition methods.....	47	29
APPENDIX I. REFERENCES	--	30
II. IDENTIFICATION OF REPLACEABLE PARTS	--	31

SAFETY PRECAUTIONS

When changing blades or working underneath the scraper, always place cribbing beneath the bowl to prevent it from dropping.

Do not work under the apron when it is in the raised position, without first placing cribbing between the apron arms and scraper sides, to prevent the apron from dropping.

Do not work behind the tailgate when it is pulled forward, without first blocking it in the forward position.

Do not touch the cable on the sheaves while the unit is in operation.

Use gloves when handling cable.

Do not use weak or frayed cable.

When moving down a steep hill, always be ready to drop the blade to the ground to serve as a brake, in event the scraper should start to jack-knife or get out of control.

Do not leave the scraper with the blade in a raised position.

Faint, illegible text, possibly bleed-through from the reverse side of the page.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual is published for the use of the personnel to whom the scraper is issued. It contains information on the operation and organizational maintenance of the scraper, as well as a description of the major units and their functions in relation to other components of the materiel. These instructions apply only to the Scraper, Road, Towed Type, Cable Operated, Open Bowl, 12 cu. yd., 4 Wheels, Wooldridge Model OS-122A. Appendix I contains a list of references, and appendix II contains an identification table of replaceable parts.

2. Record and Report Forms

Maintenance record forms listed and briefly described in *a* through *l* below will be used in the maintenance of this equipment.

a. DD Form 110, Vehicle and Equipment Operational Record. This form is used by equipment operators for reporting the accomplishment of daily preventive maintenance services, and for reporting all equipment deficiencies observed during operation.

b. Standard Form 91, Operator's Report of Motor Vehicle Accident. One copy of this form is kept with the equipment at all times. In case of an accident resulting in injury or property damage, Form 91 is filled out immediately (or as promptly thereafter as is practical) by the operator.

c. DA Form 464, Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment. This form is used by personnel of the using organization and higher echelons for reporting the results of preventive maintenance services and technical inspections.

d. DA Form 460, Preventive Maintenance Roster. This form is used for maintaining an operating time record on the item of equipment, and for scheduling lubrication and preventive maintenance services at proper intervals.

e. DA Form 478, MWO and Major Unit Assembly Replacement Record and Organizational Equipment File. Major repairs or rebuilding, replacement of major unit assemblies, and accomplishment of equipment modifications are recorded on this form.

f. DA Form 468, Unsatisfactory Equipment Report. This form is used for reporting manufacturing, design, or operational defects in the materiel, with a view to correcting such defects; it is also used for recommending modifications of the materiel. DA Form 468 is not used for reporting failures, isolated materiel defects, or malfunctions of the materiel resulting from fair wear and tear or accidental damage. DA Form 468 is not used to report issue of parts and equipment, or for reporting replacements and/or repairs.

g. DD Form 6, Report of Damaged or Improper Shipment. This form is used for reporting damages incurred in shipment.

h. DA Form 9-81, Exchange Part or Unit Identification Tag. This form is used to accomplish the direct exchange of unserviceable for serviceable parts.

i. DA Form 811, Work Request and Job Order. This form is used to request work done by higher echelon organizations.

j. DA Form 867, Status of Modification Work Order. This form is used to maintain records of all modification work performed on equipment.

k. DA Form 5-13, Spot Check Inspection Report of Organizational Maintenance of Engineer Equipment. Organizations having engineer field maintenance responsibility use this form for reporting the results of semiannual spot-check inspections.

l. DA Form 5-14, Annual Technical Inspection Report of Engineer Equipment. Organizations having engineer field maintenance responsibility use this form for reporting the results of annual technical inspection.

Section II. DESCRIPTION AND DATA

3. Description

a. General Information. The Wooldridge Scraper, Model OS-122A, is a tractor-drawn, self-loading, hauling, digging, spreading, and grading unit of approximately 12 cubic yards struck capacity. The scraper is cable-controlled by means of a power-control unit on the rear of the towing tractor.

b. Scraper. The major assemblies of the scraper consist of carriage structure, bowl, yoke, front truck, apron, bottom, and wheel assemblies with pneumatic tires. The scraper is designed to operate equally well in large and small gravel, soft and packed material, frozen and muddy material, and on level or hilly terrain.

c. Carriage Structure. The carriage structure is the dirt carrying assembly of the complete scraper. It is made up of two separate bowl sides and held together by the front and rear spreader assemblies, slough plate, and the blade base. These assemblies are welded together, forming the carriage or bowl.

d. Bowl. The bowl is a part of the scraper. Its operational function is to carry the load. It is made of reinforced sides joined by cross members to form a box-like structure.

e. Yoke. The yoke is a heavy, forward member, joined to the sides of the bowl at pivot points located back of and above the cutting blade. Its operational function is to raise and lower the bowl.

f. Front Truck. The front truck is composed of axle housing and axle, drawbar assembly, and ball-and-socket, to which the yoke ball socket is attached. The towing tractor is attached to the scraper through the hitch yoke. The front truck axle is supported by the two front wheels.

g. Apron. The functional operation of the apron is to control the load in its open and closed position. The apron opens on loading and unloading and is in a closed position when carrying a load.

h. Bottom. The bottom produces a clean discharge of the load. Hinged back of the cutting blade, the bottom sweeps and pushes the load out of the bowl, and at the same time cleans the stationary back and sides.

i. Blade Base. The blade base serves as a base for the scraper cutting edge and is a fabricated member made up of a heavy, structural section, reinforced for strength. It forms the main cross member at lower forward section of the bowl sides

and welds into the bowl sides. To this base is bolted the single-piece, straight blade, or cutting edge. The blade is secured with $\frac{1}{2}$ -inch plow bolts and nuts.

j. Side Cutter Blades. The side cutter blades are used to protect the lower leading edges of the bowl sides from wear; they are reversible from one side of the scraper to the other. They are held in place by $\frac{1}{8}$ -inch plow bolts and nuts.

k. Pusher Block. The pusher block at the rear of the scraper serves as a contact point for the pusher tractor to bear against, when the pusher is assisting in loading the scraper.

l. Front Wheel Assembly. The wheels are heavy-duty, fabricated, one-piece, and ride on roller bearings. The axle is welded to the drawbar. The tires are large-diameter, heavy-duty, size 16.00 x 24, 16 ply.

m. Rear Wheel Assembly. The rear wheels are heavy-duty, fabricated, one-piece, and ride on roller bearings. The wheels ride on individual axles, which are of heavy type and positioned in place by U-bolts and bearing blocks. The tires are of large-diameter, heavy-duty, size 16.00 x 24, 20 ply.

4. Identification

The Corps of Engineers identification plate specifies the official nomenclature, the model number, and the serial number of the scraper. When requisitioning spare parts for this equipment, specify the Department of the Army registration and serial number.

5. Tabulated Data

a. Capacity.

Struck measure..... 12.2 cu. yds.
Heaped measure..... 15.5 cu. yds.

b. Dimensions and Weight.

Overall height, blade on 9 ft. 11½ in.
ground.
Overall width..... 11 ft. 1 in.
Overall length, with pusher.. 33 ft. ½ in.
Wheel base..... 19 ft. 11½ in.
Internal bowl width..... 9 ft. 3 in.
Blade clearance and depth of 19 in.
spread, with 16.00 x 24
tires.
Front truck clearance..... 22 in.
Front apron opening (at blade 78 in.
lip).

b. Dimensions and Weight—Continued

Digging depth..... Unlimited.
Weight, approximately..... 24,140 lbs.

c. Cable.

Hoisting cable to power con- ½ in. x 87 ft.
trol unit.
Apron and bottom dump ½ in. x 300 ft.
cable. reel.
Apron lift cable..... ¾ in. diameter

d. Sheaves, Nominal Diameter.

Fairlead..... 7 in.

d. Sheaves, Nominal Diameter—Continued

Apron idlers..... 10½ in.
All others..... 9 in.
Sheave mounting..... Roller Brgs.

e. Wheels and Axles.

Bearings..... Timken roller
Tires..... 4-16.00 x 24

f. Blade.

Reversible, nominal size..... 1 in. x 10 in.
9 ft. 3 in.

g. Horsepower Required (min). 70

CHAPTER 2

OPERATING INSTRUCTIONS

Note. Information concerning controls connected with the operation of the scraper will be included in the technical manual covering the power control unit on the towing equipment.

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. New Equipment

a. General. It is general practice to ship the scraper on a flat car, well secured by wheel blocks, side timbers, and holddown cables. The scraper is usually shipped assembled and is unloaded by rolling down a ramp, or hoisted from the flat car by the use of a crane when available.

b. Unloading. When unloading the scraper from the bed of the flat car with a crane, be sure that the forward and rear slings are in place and taut before removing the wheel blocks, side timbers, and holddown cable. If there is no crane available, a ramp must be provided. Secure a hold-back cable to the scraper with a double wrap around a stake secured to the rear of the flat car before removing the wheel blocks, side timbers, and holddown cable. Then inch the scraper down the ramp.

c. Removal of Preservative Compounds. Remove all preservative compounds, lubricants, and devices, using an approved dry-cleaning solvent. Be sure to remove all compounds found in the sheave housings and on all finished surfaces.

d. Assembling. If the scraper arrives partially disassembled, it is first necessary to assemble the unit. After the scraper has been completely assembled, reeve the cable through the sheave housings as outlined in the cable reeving diagram (fig. 4).

e. Inspection. Make a visual inspection of the entire unit. Check for loose and missing bolts, nuts, pins, and broken or cracked parts. Check all points of lubrication as specified in the lubrication order. Inspect the cable and sheave housings and sheaves to make sure that they are properly installed and alined. Raise and lower the apron. Move the tailgate forward and allow it to return to the rear position. Check for free movement.

7. Used Equipment

Follow the same procedure on receipt of used equipment as on new equipment, except where parts are worn and unserviceable. Replace worn, cracked, or unserviceable parts.

Section II. OPERATION UNDER USUAL CONDITIONS

8. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for the operation of this scraper.

b. It is essential that the operator know how to perform every operation of which the scraper is capable. This section gives instructions on starting and stopping the scraper, instructions on the basic motions of the unit, and instructions on how to coordinate the basic motions to perform the specific tasks for which the scraper is designed. Since nearly every job presents a different problem,

the operator may have to vary the given procedure to fit the individual job.

9. Starting and Stopping

The starting and stopping of the scraper is controlled by the operator of the towing tractor, using the levers which control the movements and functions of the various scraper assemblies. The hoist clutch and dump clutch are the operator's controls for the operation of the scraper. Be sure the bowl rests on the ground when the scraper is at halt.

10. Operating Details

a. The scraper is controlled by means of the power control unit mounted on the rear of the towing tractor. The control lever operating the right drum controls the raising and lowering of the bowl. Moving the lever towards the center of the tractor (to the left) engages the hoist clutch and raises the scraper bowl. Returning the lever to neutral position applies the brake to the cable drum and holds the bowl in the raised position. Moving the right drum control lever away from the center of the tractor (to the right) releases the brake from the cable drum, and allows the bowl to lower. Returning the lever to neutral position applies the brake to the cable drum and holds the bowl at the level to which it is lowered.

b. The control lever operating the left drum controls the apron and tailgate. Moving the lever towards the center of the tractor (to the right) engages the dump clutch and raises the apron. When the apron is raised to its full height, the tailgate is pulled up and forward into dump position. Returning the control lever to neutral position applies the brake to the cable drum, and holds the apron and tailgate in the desired position. Moving the control lever away from the center of the tractor (to the left) releases the brake from the cable drum, allowing the tailgate to return to its original position, and also permits the apron to lower.

11. Operation

a. General. The operating cycle of the scraper includes the operation of loading, hauling, unloading or spreading, and returning to the cut. The power for each of these operations is supplied by the tractor. The tractor pulls the scraper blade through the ground when loading, tows the scraper when traveling, and provides the power for unloading. The power control unit, in controlling the working parts of the scraper, either spools or unspools the cable on or off the cable drums, depending upon the movement of the control levers by the operator. The control cables extend to the various working parts of the scraper and actuate these parts to perform the necessary functions. The cables pass through sheave blocks at various points on the scraper. This multiplies the line pull delivered by the power control unit many times at some points, depending on the number of sheave wheels used in the sheave blocks, thus providing the larger amount of power needed for the various functional operations.

b. Uses. The scraper is used for making deep cuts, fills, spreading all types of material finish grading, sloping banks, and hauling all types of material.

12. Operating Cycle

a. General. The operating cycle consists of loading, hauling, spreading, and returning to the cut.

b. Loading. To load the bowl of the scraper and fully utilize its capacity, enter the cut with the bottom and tailgate in load position, and with the apron raised approximately 6 to 12 inches.

- (1) Move forward and lower the blade into the ground, allowing it to penetrate to the desired depth. Keep the apron low, leaving an opening just large enough for the dirt to enter, but not so low as to cause the dirt to bank up in front of the blade. Loading is usually done in low gear. As the unit moves forward, loading the dirt into the bowl, the material will fall forward, against the apron as well as back against the tailgate.
- (2) When the scraper is loaded, lower the apron and raise the blade 1 or 2 inches above the surface of the ground. Travel several feet before raising the blade to a higher position. This will spread the loose material in front of the blade and thereby leave the cut smooth to pull in and out of.
- (3) On short hauls it is not profitable to take extra time to get the last wad of dirt. However, on long hauls, it often pays to take the extra time and obtain the added yardage because on long hauls the extra loading time is such a small percentage of the total cycle time.
- (4) Try to arrange the work so that the scraper can be loaded down hill and in the direction of travel to the fill.

c. Hauling. Traveling to the fill with a loaded scraper is usually done with the tractor in the highest gear possible, without overloading the tractor engine. The bowl of the scraper should be carried fairly close to the ground, but high enough to clear objects on the haul road, in order to avoid repeated raising and lowering of the bowl.

- (1) Carrying the bowl close to the ground prevents danger of upsetting the scraper, particularly when traveling over rough

haul roads. It also prevents traveling with stops together which might cause breakage of the hoist cable, or upsetting the scraper when making a short turn. Provide at least 6 inches of clearance between the sheave stops at all times when hauling.

- (2) When turning sharply on extremely rough ground, the operator should be careful not to cramp the front axle structure beyond reasonable limits, in order to avoid the danger of damaging the tires by bringing them in contact with the yoke.
- (3) When there is a choice of two or more routes for traveling from the cut to the fill the shorter route normally should be taken, even though it requires traveling steep inclines in low gear. Operating in low gears means slower rotation and less wear on the equipment. Several factors should be considered, such as traveling time, condition of haul roads, and wear and tear on the equipment.

d. Unloading or Spreading. Spreading is usually done in the highest gear possible, dependent upon the material and conditions. Upon arriving at the fill with the loaded scraper, either raise or lower the bowl as is required to give the desired thickness of spread.

- (1) Engage the power control unit left drum, raising the apron to its full height, allowing the dirt in the apron to fall out. When the apron reaches its full height, disengage the clutch and release the brake, allowing the apron to drop about 12 inches. Then immediately engage the clutch and raise the apron again. If operating in sticky material, it may be necessary to repeat this operation once or twice to dislodge the material from the back of the apron. After the dirt has fallen out of the apron, reengage the clutch and bring the bottom and tailgate up and forward, gradually dumping the load.
- (2) Starting a new spread, the blade should be lowered slightly as the rear wheels come up onto the material that is ejected, in order to maintain an even depth of the spread. Do not force the load out too rapidly, as this causes unnecessary strain on the cables and may cause the material to stack up in front of the blade.

- (3) When the bottom (tailgate) nears its forward position and the load decreases, it is advisable to use less pressure on the control lever, unless the pressure is actually required to pull the tailgate forward. By exerting less pressure as the tailgate nears its forward position, the clutch would slip rather than the cable breaking, should the tailgate sheave stop-block be brought too far forward.
- (4) When the scraper is completely emptied, return the tailgate to its load position and lower the apron. Raise the bowl to the desired traveling position and return to the cut. The operator should at no time return to the cut with the apron raised and the tailgate in the extreme forward position, because cable breakage would occur when turning or when traveling over uneven ground.

e. Returning to the Cut. Traveling back to the cut is usually done in highest gear possible. When returning, the bowl should be carried comparatively close to the ground, but high enough to clear rocks and obstructions in the path of travel in order to avoid repeated raising and lowering of the bowl. Carrying the bowl low to the ground prevents upsetting.

- (1) Allow at least 6 inches clearance between the stop blocks. This will prevent cable breakage when traveling over rough, uneven ground and when turning.
- (2) Smooth up the haul road with the empty scraper by dragging the blade on the ground, with the apron raised and the tailgate in dump position. The tailgate should never be in the extreme forward position during this operation.

13. Movement to a New Location

Clean all loose and sticking material from the entire scraper, paying particular attention to the bowl and sheave housings. Lower the apron and raise the bowl as far as possible, and secure the apron to the yoke. Remove the hoist and dump cables from the power control unit and uncouple the tongue from the tractor drawbar. Coil the cable ends and secure to the scraper. The scraper can be towed by truck, loaded on prime mover, or shipped by rail. If the scraper is towed, be sure that the towing vehicle is heavy enough to control the scraper on steep grades.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

14. General

This section contains special instructions, in addition to those previously covered, on the operation, functional use, care, and general handling the equipment will require under special conditions and terrain.

15. Cold Weather Operation

a. When operating in cold weather, the use of a roter may be necessary in order to break up the frozen top soil ahead of the scraper.

b. In cold weather be sure there is no dirt in the bowl at the end of the operation. Dirt will freeze in the bowl and impede efficiency when operation is resumed.

c. When stopping operation, allow the bowl to rest on planks rather than on the ground. This will avoid freezing of the scraper bottom to the ground.

16. Operation Under Dusty or Sandy Conditions

For operation in sandy or dusty areas it is important to lubricate the scraper frequently. Dust and sand will damage the bearings and working parts of the scraper. Water or oil on the haul roads can be used to control sand or dust.

17. Operation in Muddy Areas

When operating in muddy areas, it is important that the mud be kept out of the sheaves to insure proper operation of the cables. It may be necessary to stop the scraper during operation and clean the mud out of the bowl, as the mud will collect on the bottom and sides of the bowl, making it difficult for the tailgate to come fully ahead. In some cases the cable may break because of an excess of mud caked on the bottom (tailgate).

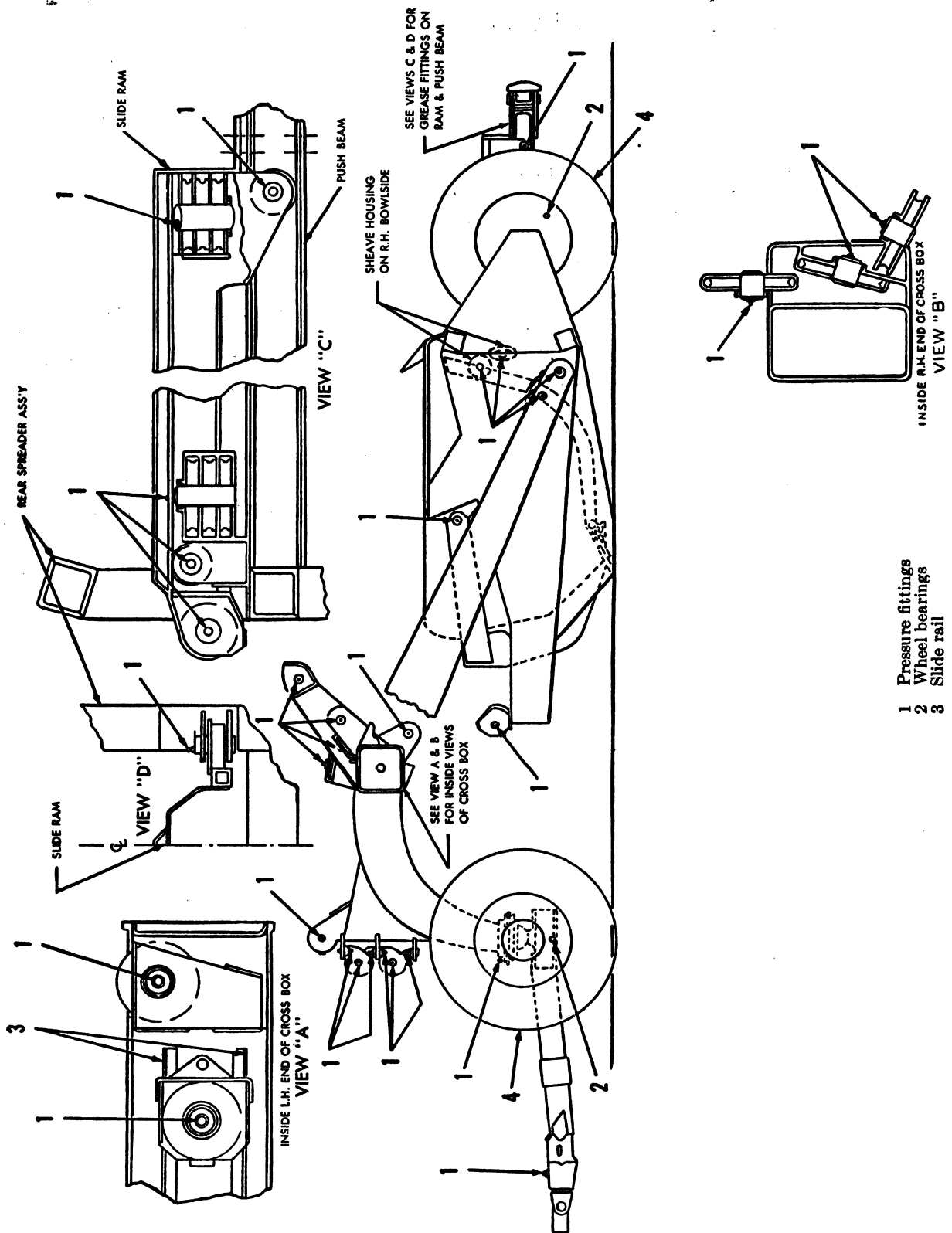


Figure 1. Lubrication chart.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL ORGANIZATIONAL TOOLS AND EQUIPMENT

18. General

The tools, parts, and equipment sets supplied with, or issued for use with, this scraper are listed in the Department of the Army Supply Manuals.

19. Special Organizational Tools and Equipment

The tools, parts, and equipment sets supplied with or issued for use with this scraper are listed in Department of the Army Supply Manual, Eng 7 & 8-1349.

Section II. LUBRICATION AND PAINTING

20. General

The lubrication chart (fig. 1) prescribes the approved first and second echelon lubrication instructions for the scraper. The instructions contained therein are mandatory.

- a. Lubricate pressure fittings daily with GAA.
- b. Repack the wheel bearings semiannually with GAA.

c. Lubricate the slide rail daily with CW.

21. Painting

Due to the nature of the work performed by the scraper, it is necessary to paint the exposed parts at frequent intervals in order to avoid excessive rusting and deterioration. For additional information, refer to TM 9-2851.

Section III. PREVENTIVE MAINTENANCE SERVICES

22. General

The operator of the scraper and the organizational maintenance personnel must perform their preventive maintenance services regularly, to make sure the scraper operates correctly and to lessen the chances of mechanical failure.

23. Operator or Crew Maintenance

a. *Inspections.* Inspections must be made before operation, during operation, at halt, and after operation, as described in this section. All inspections of assemblies, subassemblies, or parts must include all supporting members or connections and must determine whether the unit is in good condition, correctly assembled, secure, or worn. A mechanical condition which may result in further damage to the unit must be corrected before the equipment is operated.

- (1) The inspection for "good condition" is usually an external visual inspection to determine whether the unit is damaged beyond safe or serviceable limits, or to determine if it is in such a condition that

damage will result from the operation. The term "good condition" is further defined as not bent or twisted; not chafed or burned; not broken or cracked; not bare or frayed; not dented or collapsed; not torn or cut; adequately lubricated.

- (2) Inspection of a unit to see that it is "correctly assembled" is usually an external visual inspection to determine whether it is in its normal assembled position in the equipment.
- (3) Check of a unit to determine if it is "secure" is usually an external inspection, a hand-feel, or a pry bar or wrench check for looseness in the unit. Such an inspection should include brackets, lock-washers, locknuts, locking wires, or cotter pins used in the assembly.
- (4) "Worn" means worn close to or beyond serviceable limits, a condition likely to result in a failure if replacement of the affected parts is not made before the next scheduled inspection.

b. Reporting Deficiencies. The operator will report all deficiencies on DD Form 110.

c. Before-Operating Services. The following services will be performed to determine if the condition of the equipment has changed since it was last operated, and to make sure the equipment is ready for operation. All deficiencies must be corrected or reported to the proper authority before the unit is put into operation.

- (1) *Tires.* See that none of the tires is underinflated to such an extent that damage to the tire may result. Correct tire pressures for various operating conditions are listed on a plate on the scraper. Examine the tires for cuts and embedded foreign matter.
- (2) *Cables.* Check cable alignment to determine whether it is fouling at any point.
- (3) *Control.* Raise and lower the apron and bottom, checking for free movement.
- (4) *Visual inspection.* Check for loose or missing bolts, nuts, pins, loose connections, and damage that may have occurred since the equipment was last operated.

d. During-Operation Services. The operator is responsible for correcting or reporting unusual sounds or odors, deficiencies in performance, or other signs of abnormal operation. He will perform the following specific services:

- (1) *Unusual operation.* Check for unusual operation such as cables cross-winding on the drum, drum brake not holding the load, sheaves not turning, apron failing to open or close, slipping clutches, bottom and tailgate failing to return to load position, and misalignment of sheaves.
- (2) *Unusual noises.* Check for abnormal noises. If unusual noises are noticed, stop operation and report to the proper authority.

e. At-Halt Services. During halts, even for short periods, the operator should make a general check of the equipment and correct or report all deficiencies noticed, in addition to performing the following specific duties:

- (1) *Tires.* See that the tires are properly inflated. Check for cuts and embedded foreign material.
- (2) *Leaks, general.* Check the wheel for indication of grease leaks.
- (3) *Cables.* Check all cables for kinks, broken strands, crosswinding on drums,

and see that they are riding free in the sheave grooves.

- (4) *Sheaves.* Check all sheaves for proper alignment and for proper operation.
- (5) *Bowl.* See that no dirt is sticking to the bottom and sides of the bowl. Clean out if necessary.
- (6) *Visual inspection.* Make a visual inspection of the unit for bent, cracked, or broken parts, and for loose or missing bolts and nuts. Check the condition of cables.

f. After-Operation Services. To insure that the scraper is ready to operate at all times, the following services must be performed by the operator or crew immediately after an operating period of 8 hours or less:

- (1) *Shutdown precautions.* Place the scraper in an area where it is least likely to be damaged. Park on a solid level footing. Lower the bowl and apron to the ground to take the strain off the cables. If the scraper is to be uncoupled from the tractor, raise the bowl and fasten to the yoke, block the rear wheels, coil the cable when pulled off the tractor power control unit, and fasten securely to the scraper. Unfasten the towing hitch, and block the tongue up securely.
- (2) *Clean equipment.* Remove all mud, dirt, and excess oil or grease from the exterior of the scraper. If freezing weather is expected, pay particular attention to those places where frozen material would interfere with the movement of any part of the equipment.
- (3) *Tools and equipment.* See that all tools and equipment assigned to the scraper are clean, serviceable, and properly stowed or mounted.
- (4) *Tires.* Inspect the tires for indication of wear, underinflation, and cuts.
- (5) *Lubrication.* Lubricate as required by the lubrication chart.
- (6) *Visual inspection.* Inspect for grease leaks, for loose or missing bolts, nuts, and pins, and for worn or damaged parts. Check the condition of the cables.

24. Maintenance and Safety Precautions

a. Correct or report all mechanical deficiencies that may result in further damage to the unit if operation is continued.

b. When changing blades or working underneath the scraper, always block up under the bowl to prevent it from dropping, in event someone should accidentally release the power control unit hoist brake.

c. Do not work under the apron when in the raised position without first blocking the apron to keep it from dropping.

d. Do not work under the scraper bowl when it is in the dump position.

e. Keep hands off the cables and sheaves while the unit is in operation.

f. Use gloves when handling cable.

g. When traveling down a steep incline, always be ready to drop the blade to the ground to serve as a brake, in event the scraper should start to jack-knife or get out of control.

h. Do not leave the scraper with the blade in raised position.

i. Do not use weak, frayed cable.

j. Always change blades before they wear into the blade base.

25. Organizational Maintenance

a. Organizational preventive maintenance is performed by organization maintenance personnel, with the aid of the operator, at weekly and monthly intervals. The weekly interval will be equivalent to 60 hours of use. The monthly interval (4 weeks) will be equivalent to 240 hours of use.

b. The technical inspection column is provided for the information and guidance of personnel performing the technical inspection, and constitutes the minimum inspection requirements for the equipment.

c. The preventive maintenance services to be performed at these regular intervals are listed and described below. The numbers appearing in the columns opposite each service refer to a corresponding number on DA Form 464, and indicate that a report of the service should be made at that particular number on the form. These numbers appear in either the second, the third, or both columns as an indication of the interval at which the service is to be performed.

Technical In- spection	Service		
	Monthly	Weekly	
1	1	1	GENERAL <i>Before-operation services.</i> Check and perform the services listed in paragraph 23a.
2	2	2	<i>Lubrication.</i> Inspect the entire unit for missing or damaged lubrication fittings and for indications of insufficient lubrication.
	2	2	Replace missing or damaged fittings. Lubricate as specified in the lubrication chart. Be sure that hoods covering lubricant pumps are in place and securely fastened.
3	3	3	<i>Tools and equipment.</i> Inspect the condition of all tools and equipment assigned to the scraper. Check the condition and mounting of tool boxes and compartments.
5	5	5	<i>Publications.</i> See that a copy of this technical manual and Standard Form 91 are on the equipment and in serviceable condition.
6	6	6	<i>Appearance.</i> Inspect the general appearance of the unit, paying particular attention to cleanness, legibility of identification markings, and condition of the paint.
	6	6	Correct or report deficiencies noticed.
7	7	7	<i>Modifications.</i> See if all modification work orders applying to this machine have been completed and recorded on DA Form 478, (MWO and Major Unit Replacement Record and Organizational Equipment File).
			CONTROL SYSTEM
68	68	68	<i>Sheaves, pins, and cables.</i> Inspect sheaves, pins, and bearings for wear or damage. Inspect cables for kinks, worn, or frayed condition.
	68	68	Report or replace damaged sheaves, pins, or bearings. Replace frayed and damaged cables.
			FRAMES AND MOUNTINGS
76	76	76	<i>Tires.</i> Inspect all tires for low air pressure, wear, cuts, embedded foreign material, and missing valve caps.

Technical inspection	Service		
	Monthly	Weekly	
	76	76	FRAMES AND MOUNTINGS—Con.
77	77	77	Remove foreign material from the tires. See that all tires are inflated to correct pressure, and that all valve caps are in place.
77	77	77	<i>Tow hitch.</i> Inspect the universal forgings for wear and correct adjustment. They should be free turning with not over ½-inch end thrust.
77	77	---	Repair, replace, or adjust the forgings if necessary.
78	78	78	<i>Rear wheels.</i> Check for correct and secure mounting, leaky grease seals, and for correct bearing adjustment.
	78	78	Tighten and replace loose or missing bolts or nuts. Report or repair all deficiencies.
79	79	79	<i>Front wheels.</i> Check for correct and secure mounting, leaky grease seals, and for correct bearing adjustment.
	79	79	Tighten and replace loose or missing bolts or nuts. Report or repair all deficiencies.
80	80	80	<i>Frame.</i> Inspect for cracks, breaks, broken welds, and for loose or missing bolts and nuts.
	80	80	Tighten or replace all loose or missing bolts and nuts. See that cracks, breaks, and broken welds are repaired before further damage results.
81	81	81	<i>Front axle assembly.</i> Check for cracks, bent parts, and alinement of axle.
	81	81	Replace, repair, or report deficiencies noticed.
82	82	82	<i>Rear axle assembly.</i> Inspect axle assemblies for loose or missing bolts and nuts.
	82	82	See that all nuts and bolts are in place and tight. Correct or report all other deficiencies noticed.

Technical inspection	Service		
	Monthly	Weekly	
131	131	131	MISCELLANEOUS
			<i>Cutting edge.</i> Inspect cutting edges for wear, loose or missing bolts and nuts. The cutting edge should be reversed or replaced when worn within ¼ inch to ¾ inch of the moldboard.
	131	131	Replace and tighten all loose bolts and nuts. If necessary, reverse or replace the cutting edge.
			SCRAPER
187	187	187	<i>Cantilever yoke assembly.</i> Inspect the cantilever yoke assembly for cracks, breaks, and bends.
	187	187	Report all deficiencies noticed.
188	188	188	<i>Tailgate.</i> Inspect the tailgate assembly for cracks, breaks, alinement, and for proper operation.
	188	188	Report or repair all deficiencies noticed.
189	189	189	<i>Apron.</i> Inspect the apron for cracks, breaks, missing pins, and proper alinement.
	189	189	Report or repair all deficiencies noticed.
190	190	190	<i>Push beam.</i> Inspect the push beam and guide rollers for proper alinement, secure mounting, cracks, breaks, missing bolts, nuts, and for adequate lubrication.
	190	190	Replace and tighten all missing bolts and nuts. Report or repair all deficiencies noticed. Lubricate if necessary.
192	192	192	<i>Cutting edges.</i> Inspect the blades for loose or missing bolts and for wear.
	192	192	Replace broken or worn blades and missing mounting bolts.

Section IV. TROUBLESHOOTING

26. Use of Troubleshooting Section

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the scraper, or its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

27. Excessive Cable Breakage

Probable cause	Possible remedy
Bottom and tailgate binding when raising to dump.	Aline bottom and tailgate.
Sheaves worn or out of alinement.	Repair or replace sheaves.
Forcing material out faster than it spreads.	Eject material so it does not pile up in front of the blade.

<i>Probable cause</i>	<i>Possible remedy</i>
Releasing the dump cable fast causing the cable to kink.	Keep a slight tension on the dump cable when returning tailgate to load position.
Failure of operator to release power control unit clutch when sheave stops are brought together.	Prompt release of power control unit clutch when stops are brought together.
Traveling over unlevel ground or turning with hoist sheave stops brought together.	Allow approximately 6 inches clearance between stops.

28. Bearing Failure

<i>Probable cause</i>	<i>Possible remedy</i>
Bearings improperly lubricated.	Lubricate as specified in the lubrication order.
Bearing improperly adjusted.	Adjust bearings.
Oil seal or dust seals fail, permitting dirt or other foreign matter to enter bearings.	Replace oil seals or dust seals.

29. Scraper Cutting Uneven

<i>Probable cause</i>	<i>Possible remedy</i>
Unequal air pressure in rear tires.	Check air pressure (40 to 50 psi) and inflate to equal pressure.
The use of tires unequal in diameter on rear of scraper such as a new tire on one side and worn tires on other, or a larger tire on one side than the other.	Install tires of equal diameter.

30. Scraper Fails to Dump

<i>Probable cause</i>	<i>Possible remedy</i>
Power control unit clutch slipping.	Adjust clutch properly.
Cable kinked and caught in a sheave.	Straighten out kinks or replace cable.
Cable jumped out of sheave groove and binding between sheave and sheave housing.	Replace cable in sheave groove and check alignment of sheave. If cable guard is missing or bent replace or repair the cable guard.

Section V. SHEAVES, PINS, AND CABLE REEVING

31. Sheaves and Pins

a. Sheaves. All sheaves installed on the scraper are designed with a pitch diameter great enough to eliminate bending of the cable. Each sheave is provided with a groove of the correct size to prevent it from being pinched; it is equipped with a roller bearing to decrease friction and rolling resistance.

b. Sheave Pins. Sheave pins are carburized and finished to such a degree that they offer a true and hardened roller surface for bearing rollers. Pins are equipped with grease fittings for exterior lubrication, providing a means for keeping the sheave bearings well lubricated at all times.

c. Removal and Installation. To remove the sheave and pin for cleaning, inspection, or replacement, remove the cotter pin and hand push the sheave pin out. For installation, place the sheave in the housing and hand push the sheave pin back in place. Secure with the cotter pin.

32. Cables and Reeving

a. Hoist Cables. The scraper is equipped with three cables $\frac{3}{4}$ inch, $\frac{1}{2}$ inch, and $\frac{1}{2}$ inch in diameter respectively.

(1) *Apron lift cable.* This cable is $\frac{3}{4}$ inch in diameter. Its function is to control the lifting movement of the apron. This

cable dead-ends with a cable socket on the outside of the front gate (apron).

(2) *Hoisting cable.* This cable is $\frac{1}{2}$ inch in diameter. It is fed from a full reel of cable mounted on the scraper. It runs to the power control unit on the tractor and lifts the front gate (apron) and the bottom ejector.

(3) *Apron and bottom dump cable.* This cable is $\frac{1}{2}$ inch in diameter. It performs the job of lifting the scraper carriage (bowl) into carrying position.

b. Reeving. (fig. 4)

(1) One end of the apron hoist $\frac{3}{4}$ -inch cable is dead-ended with a cable socket on the outside of the apron, running up and over the apron idler sheave and apron crossover sheave, around the apron lead-in sheave, and dead-ending with the traveling sheave box.

(2) Starting at the left carriage hoist sheave, reeve the hoisting cable around the carriage hoist sheaves and yoke hoist sheaves, up and over the carriage hoist lead-in sheave, over the fairlead sheave, and through the swivel sheave to the power control unit.

(3) The $\frac{1}{2}$ -inch apron hoist and bottom ejector cable is threaded around the traveling

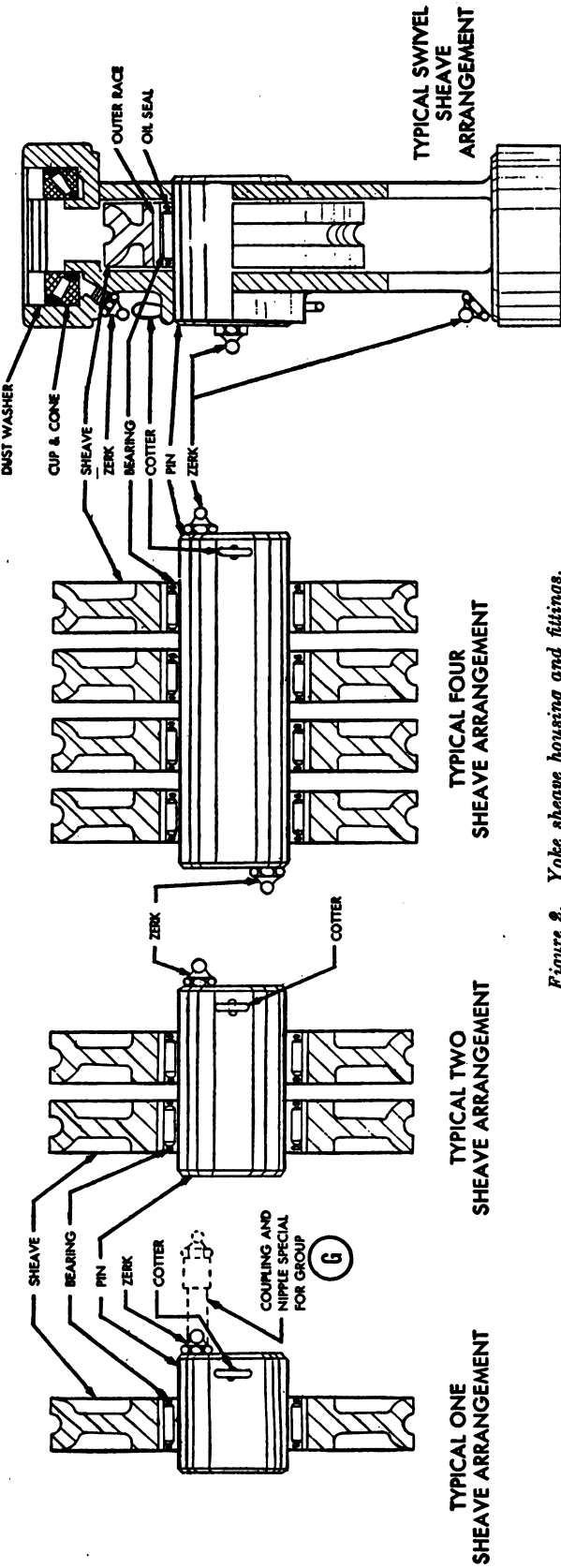


Figure 2. Yoke sheave housing and fittings.

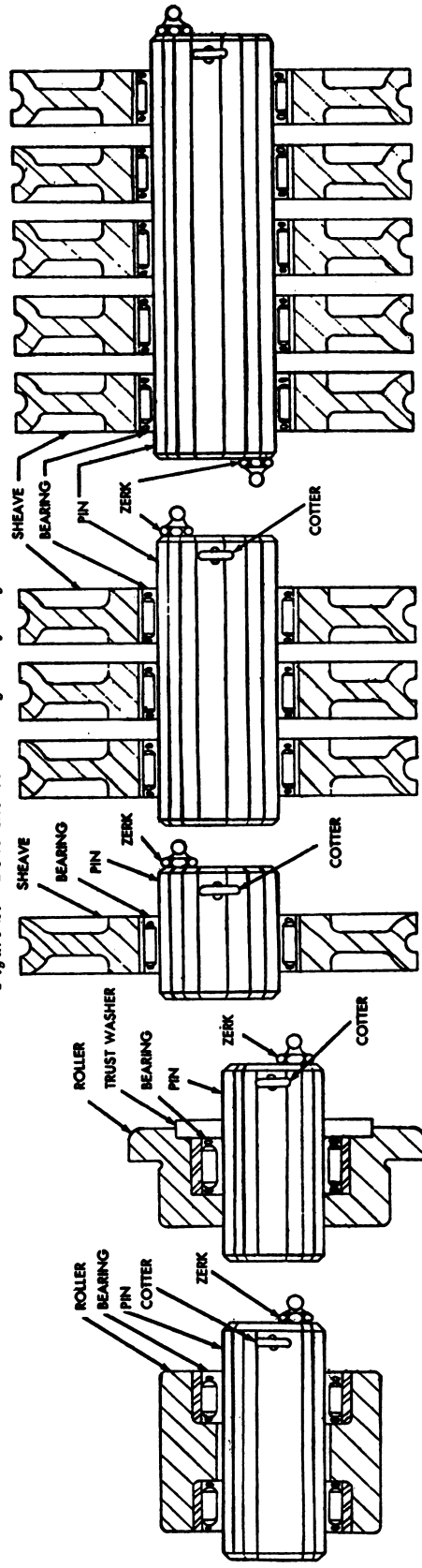
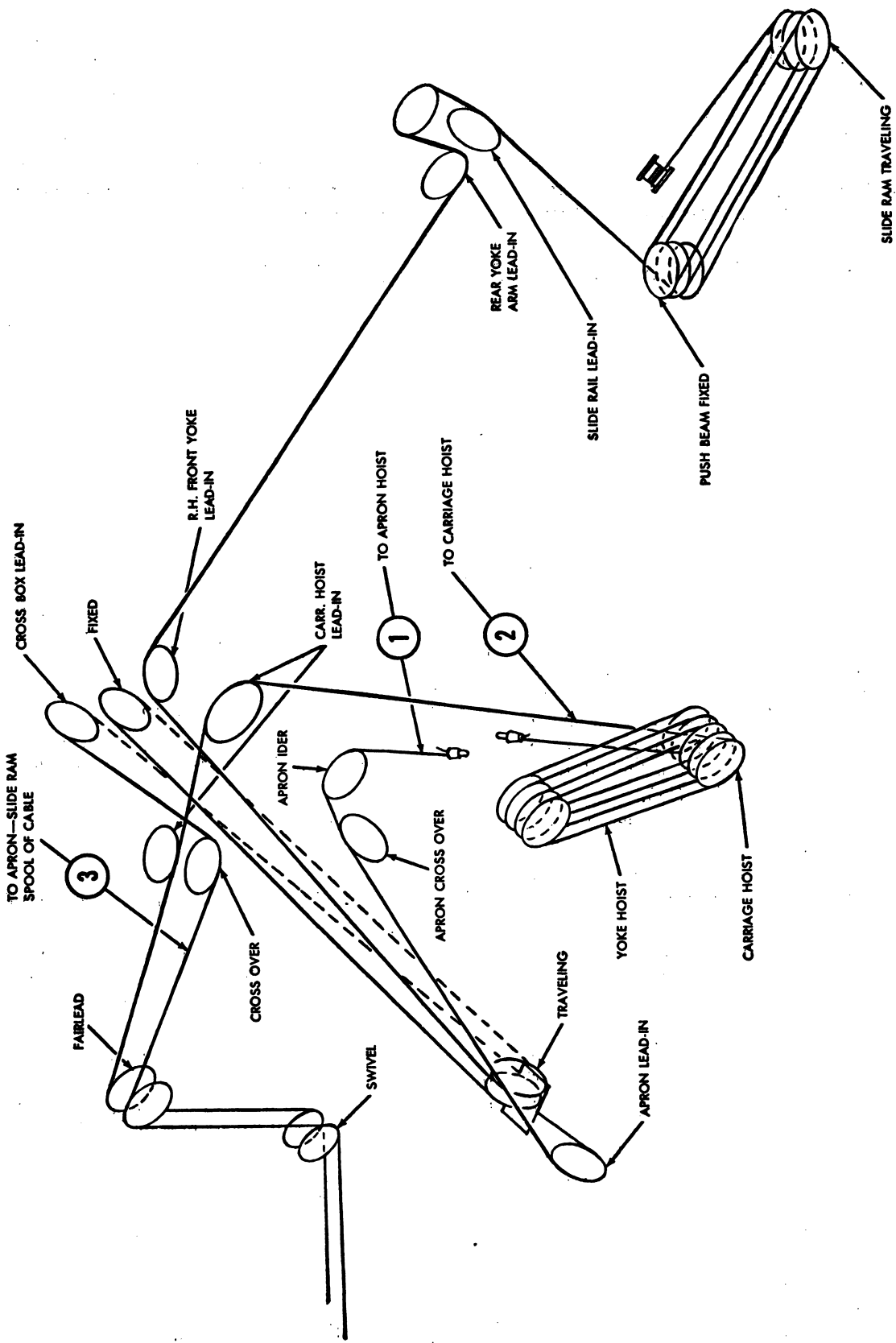


Figure 3. Carriage structure sheave and roller fittings.



- 1 Apron lift cable
- 2 Carriage hoisting cable
- 3 Apron and bottom dump cable

Figure 4. Reeving diagram

slide ram sheaves and fixed push beam sheaves, running over the slide rail lead-in sheaves, under the rear yoke arm lead-in sheave, over the right-hand front yoke lead-in sheave, over the top of the right-hand sheave in the traveling sheave box over the middle front yoke fixed sheave, back around the left-hand sheave

in the traveling sheave box, over the cross box lead-in sheave underneath the cross-over sheave, over the fairlead sheave, and under the swivel sheave to the power control unit. Wind approximately 5 feet of cable on the power control unit drum, and dead end the cable at the rear of the scraper.

Section VI. CARRIAGE STRUCTURE AND BOTTOM SLIDE RAM

33. Carriage Structure (fig. 5)

a. General. The carriage structure of the scraper is the portion which forms the major part of the body and is known as the bowl. It is the dirt-carrying assembly of the complete scraper. It is made up of two bowl sides (1) and (2) separated and held together by the front and rear spreader assembly (19) and (22), slough plate (24) and the blade base (3). All these assemblies are welded together, forming the carriage structure.

b. Push Beam. The push beam (9) anchors solidly into its supporting framework at the rear of the scraper. It is composed of structural wide flange beams, plated over, and it is designed to withstand all the forces imposed by the push tractor. It is also equipped with a swivel type push block (12) which in turn is attached to a demountable push block carrier (11).

c. Blade Base. The blade base (3) serves as a base for the scraper's cutting edge and is a member made up of a heavy, structural "tee" section, reinforced for strength. It forms the main cross member at the lower, forward section of the bowl sides, and welds solidly into same. The single-piece, straight blade (6) with twenty-eight $\frac{7}{8}$ -inch plow bolts and nuts is bolted to this base.

Caution: Never let the cutting edge blade become so badly worn that the blade base becomes part of the digging edge. This makes the scraper dig harder, and may become very costly, if the blade base has to be burned out and replaced.

d. Safety Pins. The pins (15), which are attached (one on each side) to the scraper bowl side, serve as safety pins when the bottom is raised. It is first pulled forward far enough so that both pins can be inserted in the holes (10), one on each side of the scraper, the bottom is then slowly dropped back until it rests on the pins.

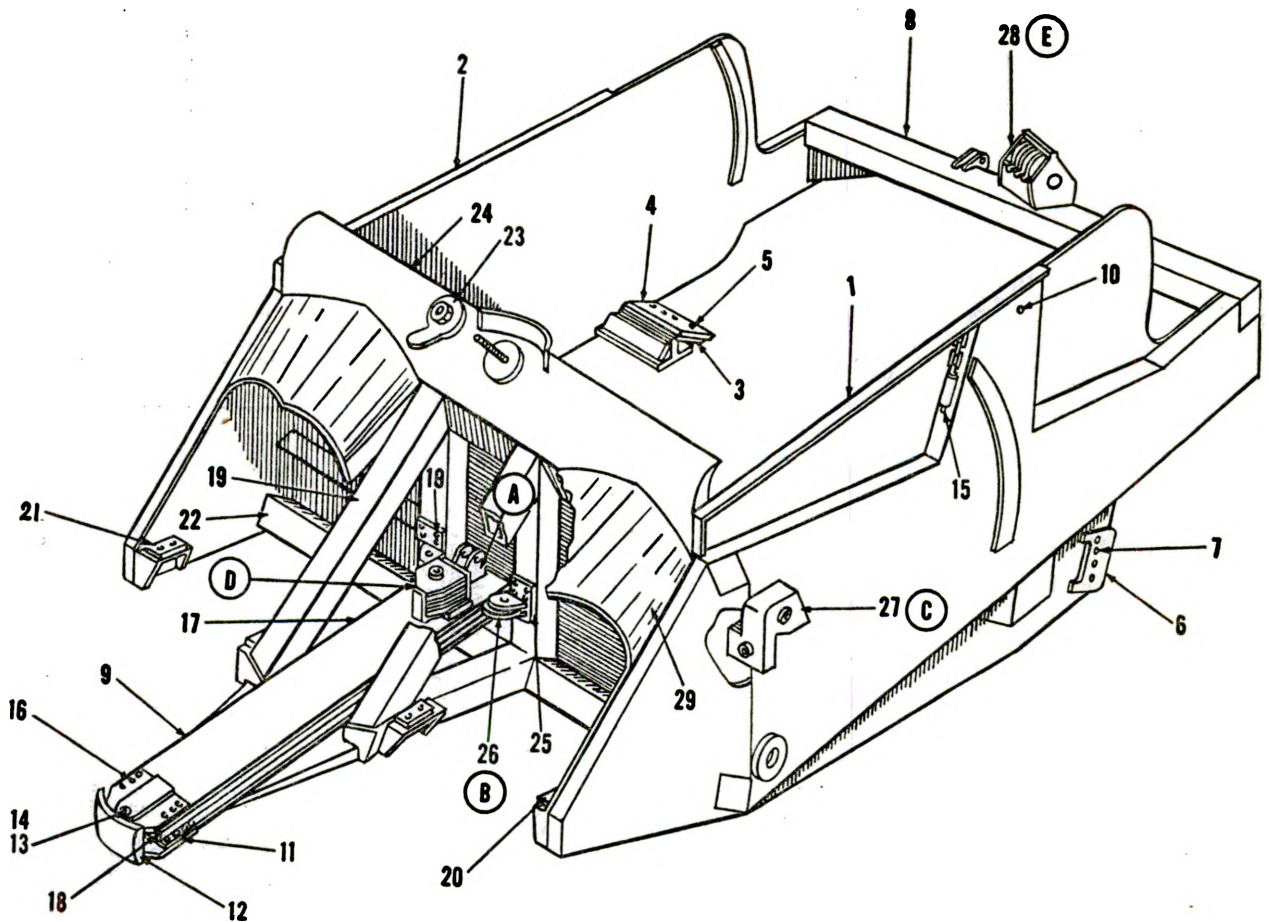
e. Side-Cutter Blades. The side-cutter blades

(6) are supplied to prevent the lower, leading edges of the bowl sides from wearing out. They are alloy steel castings and are reversible from one side of the scraper to the other. They are bolted in place with $\frac{7}{8}$ -inch plow bolts and nuts. When one end of the side-cutter blade becomes worn, switch them from side to side. Replace both cutting edges when completely worn out.

f. Linkage Plates. Two small plates are welded to the spreader beam to the left of the carriage hoist sheave box. These plates form a part of the linkage used when transporting the scraper, or moving it from one job to another. A transport link with pins is provided on the underside of the yoke cross member for this purpose. By dropping the link down, and hooking it to the carriage spreader beam, the bowl will be held up without depending on the power control unit winch and cables.

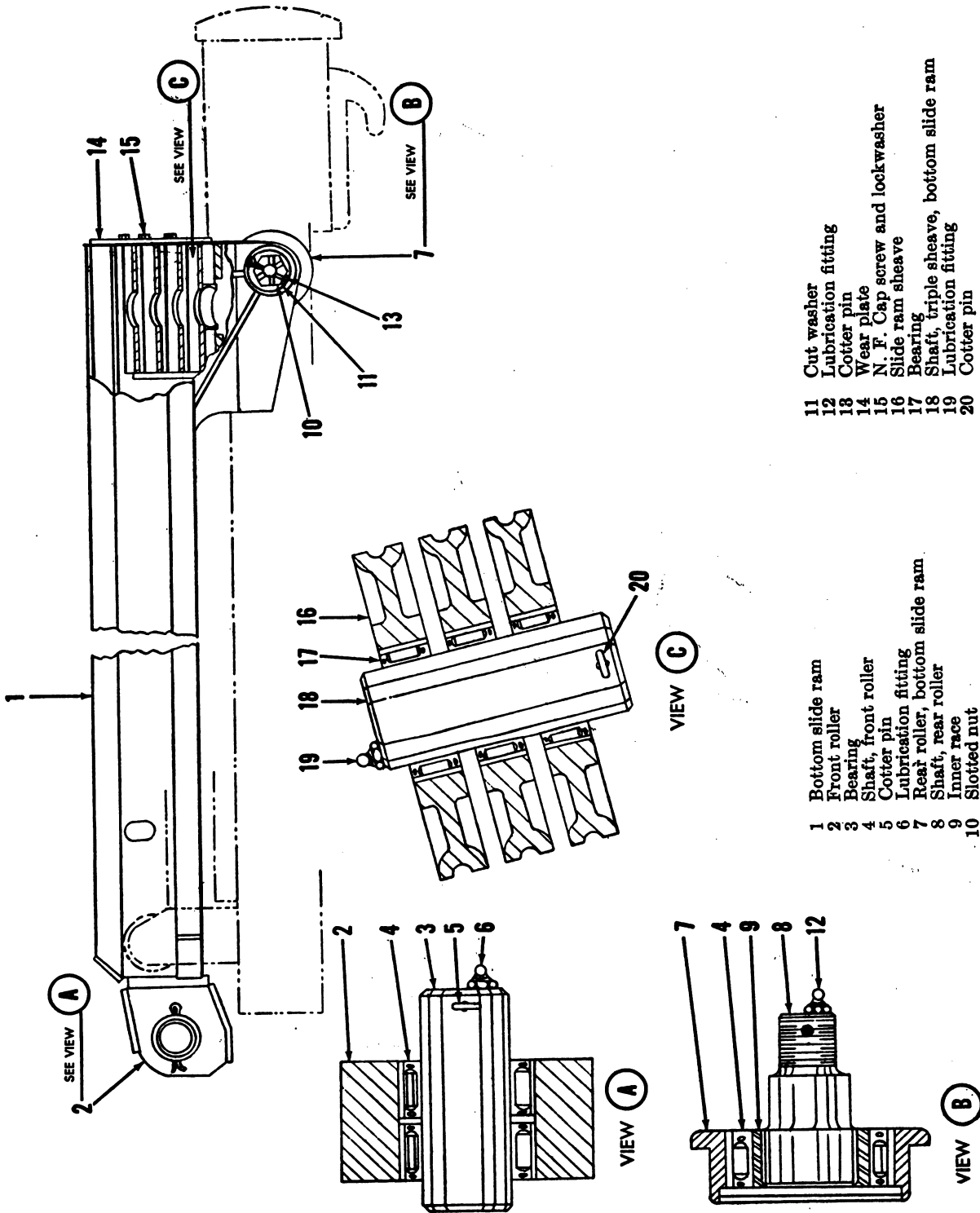
34. Bottom Slide Ram (fig. 6)

The bottom slide ram (fig. 6) is a separate assembly, but becomes a part of the carriage structure when installed. It moves forward and backward along the push beam ((9), fig. 5), and its purpose is to pivot the bottom all the way forward, dumping the material out of the scraper. When the scraper is fully loaded, the slide ram is pulled forward by the six-part cable which passes around the stationary sheaves on the push beam and those in the rear of the slide ram. It is fitted with two guide rollers (A 2, fig. 6), which guide it along the push beam, it is further held in line by the front roller, also mounted on the push beam. The double contact rollers (A 2) at the front end of the slide ram bear against the wear plates on the rear surface of the bottom when the ram travels forward. The bottom is forced to pivot at its hinge point ejecting the material.



- | | | | |
|----|-------------------------------|----|-------------------------------------|
| 1 | R. H. Bowl side | 16 | N. F. Cap screw |
| 2 | L. H. Bowl side | 17 | Cable socket and wedge |
| 3 | Blade base | 18 | N. F. Cap screw and lockwasher |
| 4 | Blade | 19 | Bracket assembly, rear axle carrier |
| 5 | Plow bolts, N. C. | 20 | Hanger pad, plate, R. H. |
| 6 | Side cutter blade | 21 | Hanger pad, plate, L. H. |
| 7 | Plow bolt and nut, 1/4" N. C. | 22 | Rear spreader assembly |
| 8 | Front spreader beam | 23 | Cable spool washer |
| 9 | Push beam | 24 | Slough plate |
| 10 | Spacer | 25 | Bolting plate |
| 11 | Push block carrier | 26 | Roller bracket, R. H. |
| 12 | Push block | 27 | Slide ram lead-in sheave box |
| 13 | Push block pin | 28 | Carriage hoist sheave block frame |
| 14 | Roll pin | 29 | Fender, R. H. |
| 15 | Pin | | |

Figure 5. Carriage structure.



- 11 Cut washer
- 12 Lubrication fitting
- 13 Cotter pin
- 14 Wear plate
- 15 N. F. Cap screw and lockwasher
- 16 Slide ram sheave
- 17 Bearing
- 18 Shaft, triple sheave, bottom slide ram
- 19 Lubrication fitting
- 20 Cotter pin

- 1 Bottom slide ram
- 2 Front roller
- 3 Bearing
- 4 Shaft, front roller
- 5 Cotter pin
- 6 Lubrication fitting
- 7 Rear roller, bottom slide ram
- 8 Shaft, rear roller
- 9 Inner race
- 10 Slotted nut

Figure 6. Bottom slide ram.

Section VII. YOKE AND FRONT TRUCK

35. Yoke

(fig. 7)

a. General. The yoke is the main carrying member of the scraper. It is supported at the front end by the front truck, and at the rear its two arms lock into the bowl side with the yoke pins. The cross box (1) ties the tow arms together, and at the same time supports the yoke horn and the gooseneck (3). The cross box (1) is hollow and houses the apron reduction sheaves.

b. Removal. To remove the yoke, disconnect

the control cables from the towing unit. Remove the 1/4-inch bolts and nuts from the ball socket ring. Remove the yoke pins located on both sides of the bowl.

c. Installation. When installing the yoke, replace the yoke pins and carefully lower the gooseneck onto the ball-and-socket ring. When tightening the 10 bolts and nuts, be sure there is no bind before the final tightening of the nuts. Considerable damage could be caused if the gooseneck was not in perfect alignment with the socket ring and ball.

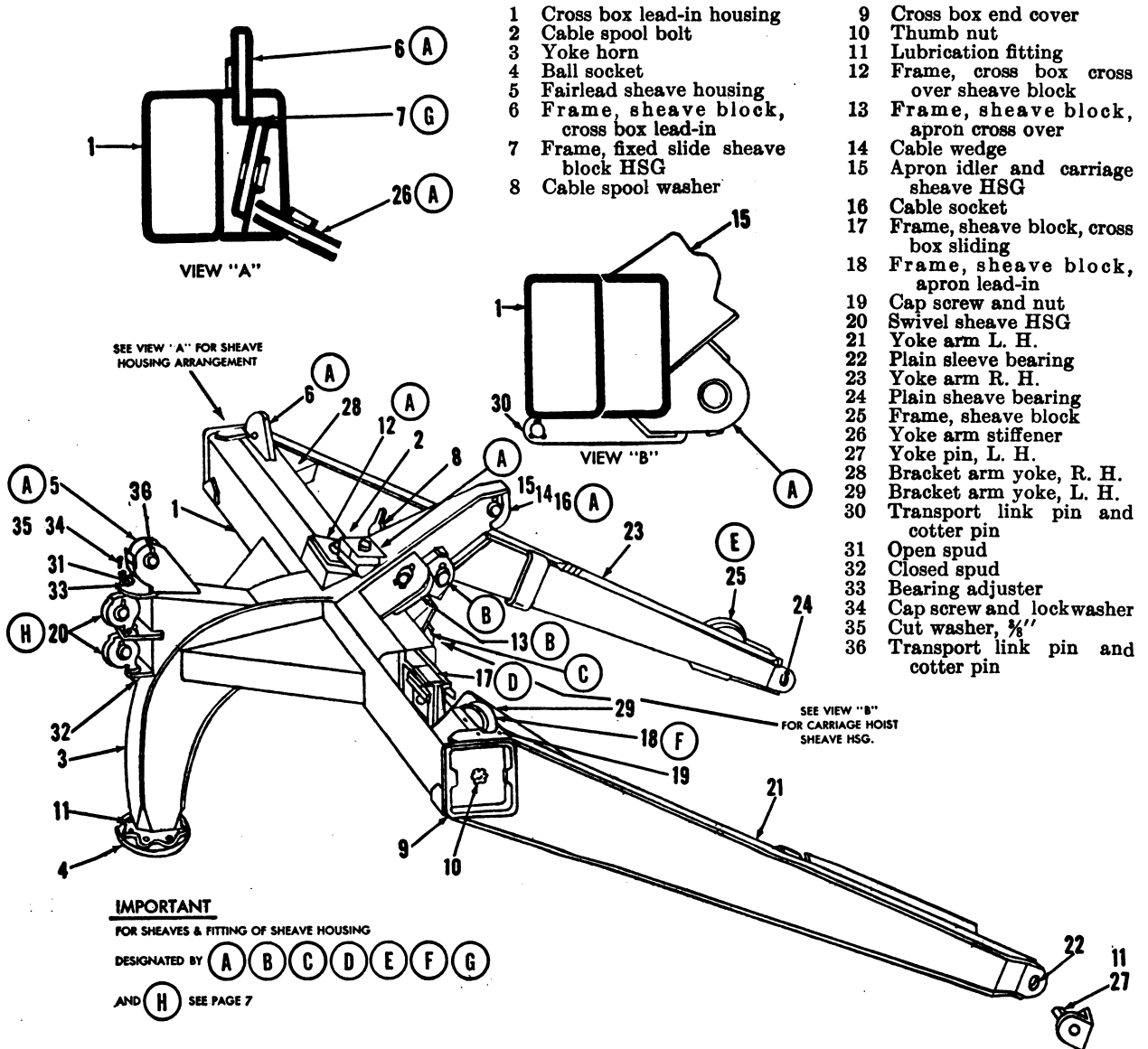


Figure 7. Yoke assembly.

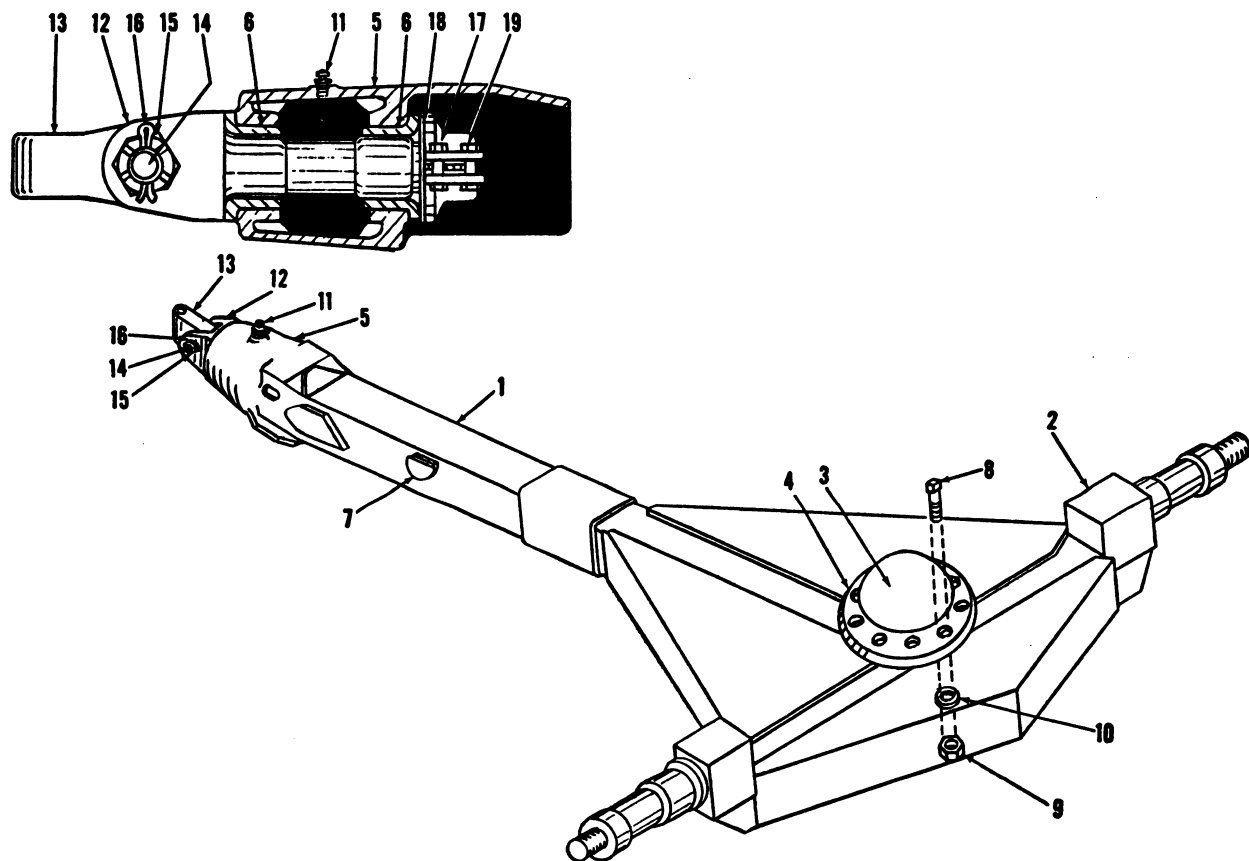
36. Front Truck (fig. 8)

a. General. The front truck is a complete assembly made up of hollow box-like sections. Each wheel is provided with an axle, which forms a part of the axle cross member. The tongue is a hollow box-like section which is secured to the axle cross member and strengthened by two angle irons welded to the axle cross member and the tongue. The tongue is provided with a hitch yoke and clevis for tow hook-up.

b. Hitch Yoke: The hitch yoke is contained within the hitch yoke housing, at the end of the drawbar, and is secured by a nut locked in place

by two cap screws. A washer separates the lock nut from the yoke hitch bushing. The hitch block is secured by a pin positioned in the yoke.

c. Removal and Installation. To remove the front truck, use the same procedure as outlined in paragraph 35*b*. To remove the hitch yoke (12, fig. 8), remove the plate on the hitch yoke housing, loosen up the yoke nut cap screws, and unscrew counterclockwise, withdraw from the hitch yoke housing. To install, insert the hitch yoke in the hitch yoke housing, replace the washer and lock-nut. The hitch yoke must be free to swivel without lost motion. Lock the yoke nut in position when the yoke is adjusted properly.



- | | | |
|-------------------------------|-------------------------------------|--|
| 1 Front truck | 8 Sq. Hd. bolt $\frac{3}{4}$ " x 6" | 15 Slotted nut $1\frac{1}{4}$ " |
| 2 Axle and housing | 9 N. C. Nut | 16 Cotter pin |
| 3 Ball | 10 Cut washer $\frac{3}{8}$ " | 17 Clevis nut |
| 4 Socket ring, hitch assembly | 11 Lubrication fitting | 18 Clevis washer |
| 5 Hitch casting | 12 Hitch yoke | 19 Cap screw $\frac{5}{8}$ " x $2\frac{3}{4}$ ", and nut |
| 6 Bearing, plain | 13 Hitch block | |
| 7 Lifting hook | 14 Hitch pin | |

Figure 8. Front truck.

Section VIII. BOTTOM AND APRON

37. Bottom

(fig. 9)

a. General. The bottom construction is of sandwich-type with inner and outer plates separated by heavy curved ribs and interlocking cross channels, which would give it the appearance of a honeycomb if one of the plates were removed. It is approximately 4½ inches in thickness, except at the point where the slide ram rollers contact the back, at this point it has a heavier wear plate with additional ribs. This assembly is called the ejector, because its purpose is to get rid of the

dirt. It ejects the material when the slide ram pushes it forward, pivoting it about the hinge until, in a full dump position, its upper portion is actually past the vertical centerline. This assembly is also called the bottom, because it forms the bottom of the scraper when in a fully returned position.

b. Removal and Installation. To remove the bottom it is only necessary to withdraw the wear pad pin which frees the bottom from the wear pad. To install, fit the hinge of the wear pad and bottom, and secure with the hinge pin.

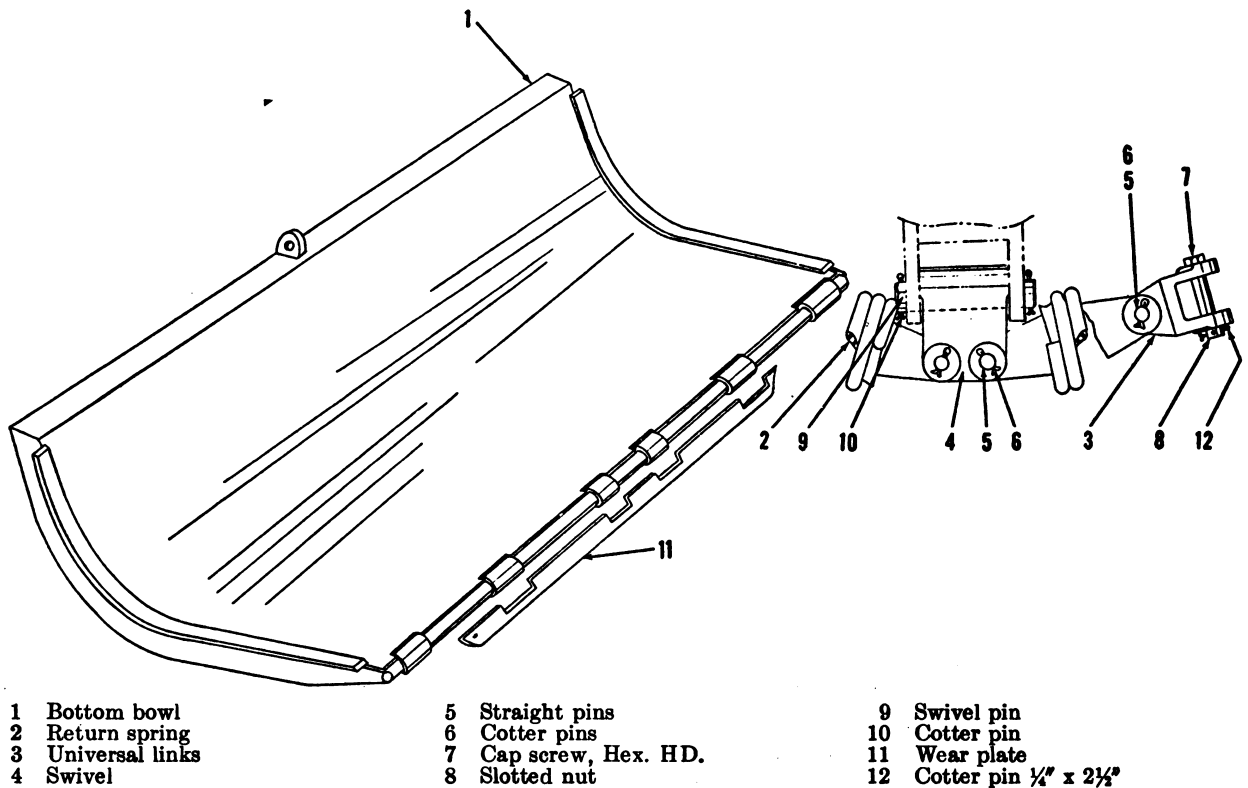


Figure 9. Bottom.

38. Apron (fig. 10)

a. General. The apron, also known as the gate or front door, is the member which holds the load in the bowl. It works in conjunction with the bottom on the same cable and is balanced with same. When actuated by its cable, the apron will raise before the bottom comes forward. This enables the operator to control the apron opening when digging, and when loaded to raise the apron all the way before the bottom dumps the load. The apron arms connect to the outside of the bowl sides with the apron arm pins (4). These pins are

held stationary in the bowl sides by the flat side of the head. They protrude clear through the apron arms and are then locked in place with a pin lock (6) and cap screw (9). The pins are drilled and tapped for the cap screws so that they cannot turn. The apron arms are bushed for longer wear. A grease fitting is provided in the apron arm for lubrication purpose.

b. Removal and Installation. To remove the apron it is necessary to remove the pin keeper. Push out the apron pin and the apron is free. To install replace the apron pin and lock in place with the pin keeper.

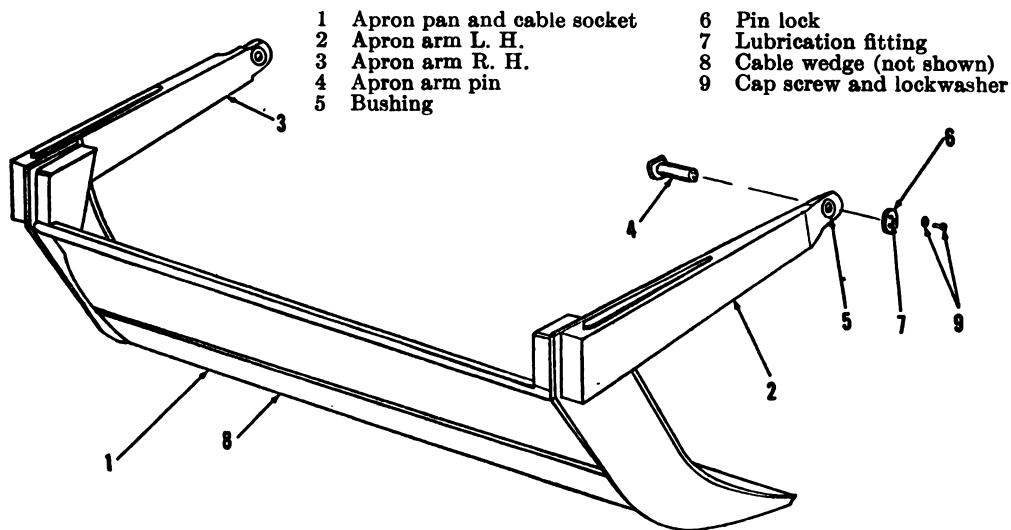


Figure 10. Apron.

Section IX. BLADE BASE AND BLADES

39. Blade Base

a. General. The blade base is permanently attached to the bottom sides of the bowl. The upper section contains a hinge section in which the bottom or tilting floor swivels. The base bed forms a heavy cross member which keeps the bowl in alignment. Do not permit the blades to become so badly worn that the blade base is acting as the cutter. It is a costly operation to replace the blade base.

b. Removal and Installation. If the blade base is badly worn or damaged, it requires replacement. The blade base must be burned out at the bowl side. Before burning off the base, weld a strip on the top of the bowl, and another on the front of the bowl, to guard against the bowl becoming twisted and out of line. When the blade base has been welded into place, burn off the two strips.

40. Blades

a. General. The cutting blade is formed of heat-treated, wear-resisting, high-carbon alloy steel. The blade is bolted to the blade base, which is permanently attached to the bottom sides of the bowl, with 26 plow bolts. The side cutting blades are attached to the bottom sides of the bowl by 8 bolts. All blades are reversible and should be reversed before they are worn to the extent that they may cause damage to the scraper.

b. Removal and Installation. Remove the bowl cutting blade by removing the 26 plow bolts and nuts which secure the cutting blade to the blade base. Remove the side cutting blade by removing the 8 plow bolts and nuts. To install the bowl cutting blade, secure it to the blade base with the 26 plow bolts and nuts. Secure the side cutting blades with 4 plow bolts in each blade.

Section X. WHEELS AND TIRES

41. Wheels

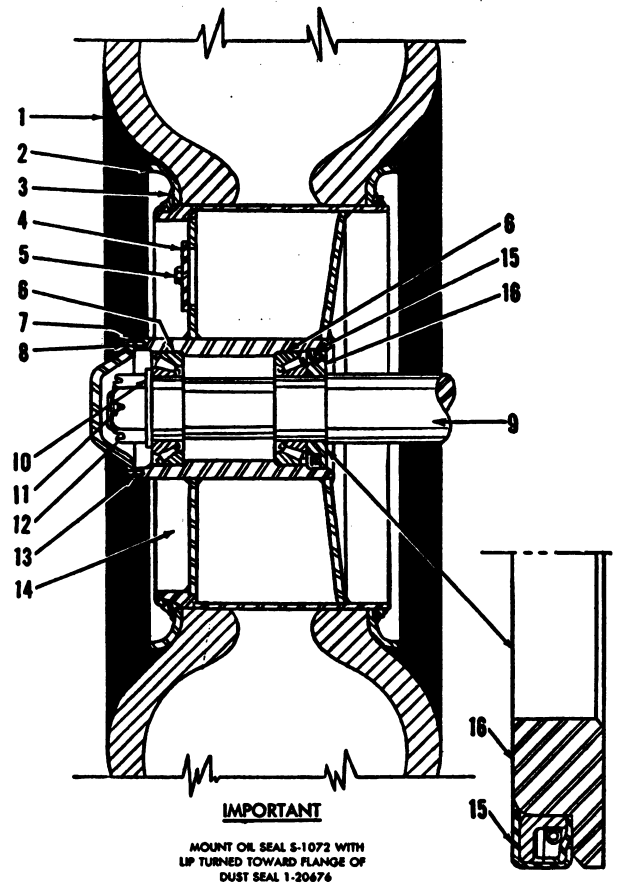
a. General. The wheels are fabricated and provided with a hand-hole for access to the tube valve stem. Each wheel is provided with two single-row, tapered roller bearings, which are factory packed with wheel bearing grease. Grease fittings have purposely been omitted to prevent the use of grease which does not comply with the lubrication order. The front wheels are mounted on the front truck axle, and the rear wheels are mounted on stub axles, straddle-mounted, on hanger pads, and are held in place by axle block U-bolts and axle block spacers. The axle nut for bearing adjustment is reached from the outside.

b. Removal, Front Wheel. Remove the hub cap, withdraw the timken nut cotter pin, unscrew the nut from the axle, and remove the timken washer. Slide the wheel off the axle, being careful not to damage the roller bearings. Removal of the oil and dust seals is seldom done without damage; therefore, regardless of condition, new seals will be used when installing.

c. Installation, Front Wheels. Be sure the axle is clean before attempting to install the wheel. Replace the dust seal and oil seal. Be sure the oil seal lip is turned towards the flange of the dust seal. Replace the timken roller bearings, being careful not to damage the bearings when replacing the wheel. Install the timken washer; screw on the timken nut. Turn the wheel and adjust the nut until there is a slight drag, then back the nut slowly. Insert the cotter pin and replace the hub cap.

d. Removal, Rear Wheels. To remove the rear wheels from the stub axles it is necessary to remove the complete assembly. Remove the U-bolts, nuts, and bearing blocks. Loosen the timken axle nut cap screws, and unscrew the axle nut. Remove the outside dust seal and outer oil seal. Withdraw the axle, being careful not to damage the timken roller bearings. Remove the inside dust seal and oil seal.

e. Installation, Rear Wheels. To install the rear wheels on the axle, it is necessary to replace the axle in the wheel with the wheel and axle assembly removed from the scraper. The axle is replaced through the inside. Mount the inside dust and oil seal; be sure the axle is clean and free from grit. Replace the bearings and mount the axle. Do not force the axle or permit the axle to bind; if the



IMPORTANT
MOUNT OIL SEAL S-1072 WITH
LIP TURNED TOWARD FLANGE OF
DUST SEAL 1-20676

- | | |
|---|------------------------------------|
| 1 Tire, tube flap | 9 Axle |
| 2 Outer flange | 10 Bearing washer |
| 3 Lock ring | 11 Cotter pin $\frac{3}{8}$ " x 4" |
| 4 Hand hole cover | 12 Locknut |
| 5 Cap screw | 13 Gasket |
| 6 Roller bearing cup and cone | 14 Single front wheel |
| 7 Hub cap | 15 Oil seal |
| 8 Cap screws $\frac{3}{8}$ " x 1" N. F. | 16 Dust seal |

Figure 11. Single front wheel.

bearings and inside oil and dust seals are properly mounted, the axle will push through the bearings with little effort. With the axle properly mounted, replace the outer oil and dust seals. Replace the old seals with new ones, regardless of condition. When mounting the seals, be sure the oil seal lip is turned towards the dust seal flange. Screw the axle nut in place, being careful not to tighten enough to damage the seals. Tighten only until there is a slight drag, then back off slightly, and lock in place with axle nut cap screws. Secure the axle to the scraper with the U-bolt, nut, and bearing block.

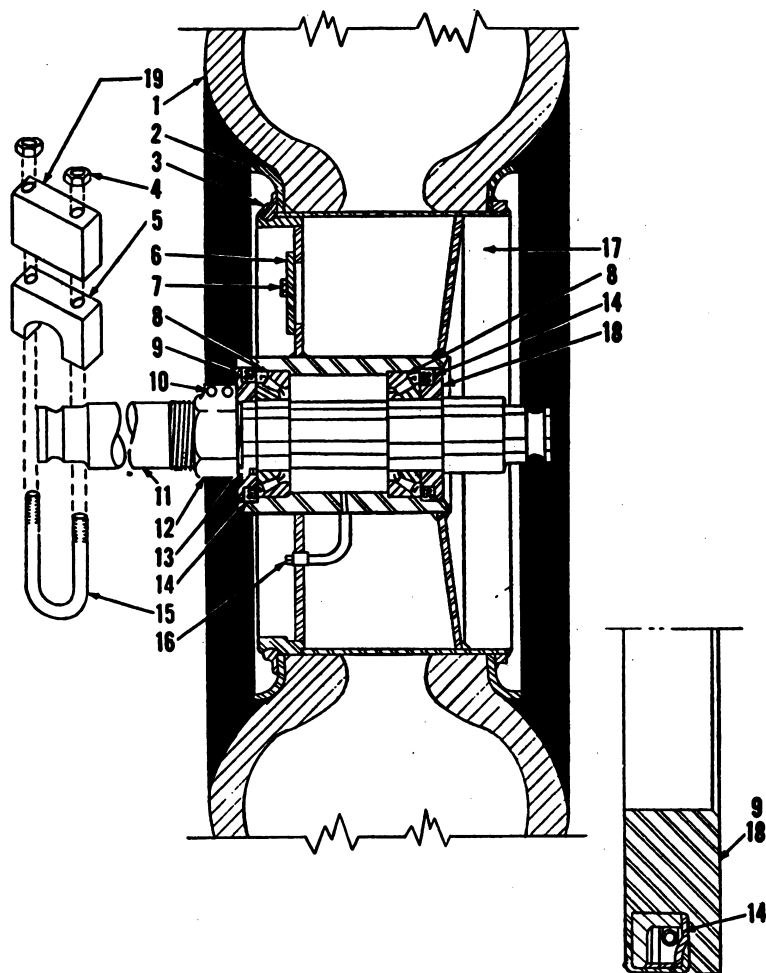
42. Tires

a. General. The tires are heavy-duty, pneumatic, 16 x 24, 20 ply. The recommended air pressure is 45 psi, but this may vary depending upon the type of material handled; 50 psi is the top pressure limit. The tires are secured to the wheel rim with flange and lock rings.

b. Removal. To remove the tire from the wheel, remove the cap and valve. Permit the air to escape, and remove the lock ring. Raise the rims free of the wheel flange one at a time. Use a tire iron. Replace the valve and cap. Be careful

when removing the tire, that the valve stem is not damaged or bent, as this may lead to a slow leak where the stem is attached to the tube.

c. Installation. To install the tire, put just enough air in the tube to remove the wrinkles. Fill the tire loosely. Force one side of the tire rim over the wheel flange, move the valve stem to its proper place, and force the other tire rim over the flange. Position the valve, and inflate with air to a full tire filling. Secure the tire on the wheel with the lock rings. Inflate the tire to the prescribed pressure.



- | | | | |
|----|--|----|----------------------------|
| 1 | Tire, tube, flap | 11 | Axle |
| 2 | Outer flange | 12 | Axle nut |
| 3 | Lock ring | 13 | Dowel pin |
| 4 | U-bolt lock nut | 14 | Oil seal |
| 5 | Axle block | 15 | U-bolt |
| 6 | Hand hole cover | 16 | Pipe plug $\frac{3}{8}$ " |
| 7 | Cap screw $\frac{3}{8}$ " x $\frac{1}{4}$ " N. F. | 17 | Rear wheel |
| 8 | Bearing cup and cone | 18 | Retainer, inside dust seal |
| 9 | Retainer, outside dust seal | 19 | Axle block spacer |
| 10 | Cap screw $\frac{1}{2}$ " x $2\frac{1}{2}$ " and nut | | |

Figure 12. Single rear wheel.

CHAPTER 4

LIMITED STORAGE, SHIPMENT, AND DEMOLITION TO PREVENT ENEMY USE

Section I. LIMITED STORAGE AND SHIPMENT

43. Limited Storage

If the scraper is to be stored or left standing for 30 days or less, follow instructions in *a* through *c* below to prevent damage to the equipment or trouble when it again is placed in operation.

a. Wipe all accumulated dirt and grease from the surfaces of the unit. After cleaning off all grease and dirt, unreeve the cable and roll on the cable drum of the towing unit. All surfaces of the scraper which show signs of rust, or where the paint has been damaged, will be cleaned and repainted.

b. Lubricate as specified in the lubrication order.

c. If possible, store under shed for protection against the elements. Relieve the weight on the tires by blocking.

44. Shipment

a. If the unit is to be moved by troop organizations by way of truck or rail, follow the directions given for limited storage (par. 43).

b. Apply protective compound on the slide rail and moving sheave.

Section II. DEMOLITION OF SCRAPER TO PREVENT ENEMY USE

45. General

When capture or abandonment of the scraper to an enemy is imminent, the responsible unit commander makes the decision either to destroy the unit or render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all scrapers and all corresponding repair parts.

46. Preferred Demolition Methods

a. General. Explosives and mechanical means, either alone or in combination are the most effective methods of demolition to employ.

b. Explosives. Place a 2-pound charge on the front and rear axles at the wheel hubs and traveling sheave on the slide rail.

c. Mechanical. Use sledge hammers, crowbars, picks, or other heavy tools which may be available,

to destroy the wheels and tires, slide rail, front truck, and bottom.

47. Other Demolition Methods

If conditions prohibit employing either of the preferred methods, use the following, either singly or in combination:

a. Demolition by Weapons Fire. Fire on the scraper wheel axles and slide rail with the heaviest weapons available.

b. Scattering and Concealment. If time permits, remove the rear wheels and axles, the front truck, apron, and bottom. Scatter them through dense foliage, or bury them in dirt or sand.

c. Demolition by Submersion. Totally submerge the scraper and its parts in a lake, stream, well, or other body of water to provide damage and concealment. Salt water will damage metal parts more than fresh water.

APPENDIX I

REFERENCES

1. Dictionaries of Terms and Abbreviations

SR 320-5-1—Dictionary of United States Army Terms.

SR 320-50-1—Authorized Abbreviations.

2. Painting

TM 9-2851—Painting Instructions for Field Use.

3. Preparation for Export Shipment

TB 5-9711-1—Preparation of Corps of Engineers Equipment for Oversea Shipment.

TB 5-9713-1—Preparation for Export, Spare Parts for Corps of Engineers Equipment.

4. Preventive Maintenance

TM 5-505—Maintenance of Engineer Equipment.

5. Publications Indexes

SR 110-1-1—Index of Army Motion Pictures, Kinescope Recordings, and Film Strips.

SR 310-20-3—Index of Training Publications

SR 310-20-4—Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.

SR 310-20-5—Index of Administration Publications.

SR 310-20-6—Index of Blank Forms and Army Personnel Classification Tests.

ENG 1—Introduction and Index.

6. Training Aids

FM 21-8—Military Training Aids.

APPENDIX II

IDENTIFICATION OF REPLACEABLE PARTS

Note. The parts listed in this appendix are for information only and will not be used as a basis for requisitioning spare parts.

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
							SECTION I. STANDARD HARDWARE	
		913	43-2325.070.060	957	¼ x 6 in.		BOLT, machine	10
		913	43-2818.080.020	957	8-10369		BOLT, plow	8
		913	43-2818.080.025	957	7-10369		BOLT, plow	28
		914	45-2736.500.001				COUPLING, pipe	1
		914	45-5600.001.040	957	¼ x 4 in.		NIPPLE, pipe	1
		913	43-445.070.100	957	24-21816		NUT, regular	10
		913	43-4489.060.180	957	21-21816		NUT, regular	2
		913	43-4489.070.160	957	23-21816		NUT, regular	12
		913	43-4600.100.080	957	1 in.		NUT, slotted	2
		913	43-4600.150.060			431-4353	NUT, slotted	2
		913	43-4600.170.050	957	1½ in.		NUT, slotted	1
		912	42-6880.300.200	957	¼ x 2 in.		PIN, cotter	8
		912	42-6880.300.250	957	¼ x 2½ in.		PIN, cotter	6
		912	42-6880.300.400	957	¼ x 3 in.	017-9095	PIN, cotter	2
		912	42-6880.300.500	957	¼ x 5 in.		PIN, cotter	3
		912	42-6880.400.300	957	¾ x 3 in.		PIN, cotter	2
		912	42-6880.400.400	957	¾ x 4 in.	017-9097	PIN, cotter	4
		912	42-6880.400.500	957	¾ x 5 in.		PIN, cotter	22
		914	45-6068.500.004	957	¾ in.		PLUG, pipe	2
		913	43-6792.040.100	957	¾ x 1 in.		SCREW, cap	4
		913	43-6834.045.080	957	⅞ x ¾ in.		SCREW, cap	6
		913	43-6834.040.100	957	¾ x 1 in.		SCREW, cap	20
		913	43-6834.050.150	957	½ x 1½ in.		SCREW, cap	10
		913	43-6834.060.270	957	¾ x 2¼ in.		SCREW, cap	2
		913	43-6834.070.170	957	¾ x 1¾ in.		SCREW, cap	12
		913	43-6834.070.230	957	¾ x 2¼ in.		SCREW, cap	12
		913	43-9533.500.041			010-3321	WASHER, lock	24
		913	43-9533.500.044	957	⅞ in.	010-3322	WASHER, lock	6
		913	43-9533.500.071			010-3326	WASHER, lock	12
		913	43-9215.500.071	957	¾ in.	187-5341	WASHER, wrought iron	10
		913	43-9215.500.151	957	1½ in.	187-5357	WASHER, wrought iron	2
		910	22-4544.635.050				ROPE, wire	
		910	22-4544.635.070				ROPE, wire	
		957	12564A	957	12564A		BEARING, plain, sleeve	2
		957	1-10992	957	1-10992		BOLT, cable spool	2
		806	1610B	957	½ in.		FITTING, lubrication	31
		806	1612B	957	½ in. 60-deg.		FITTING, lubrication	2
		957	1-22380	957	1-22380		PLATE, L. H.	2
		957	2-22380	957	2-22380		PLATE, R. H.	2
		526	RA99212	957	S-1064	151-8311	ROLLER ASSEMBLY, journal bearing.	34
		957	1-12810	957	1-12810		SHAFT, single groove sheave	12
		957	1-22236	957	1-22236		SHEAVE, slide ram	27
		957	S952	957	S-952		SOCKET, carriage cable	3
		957	S951	957	S-951		WEDGE, cable socket	3

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
SECTION II PARTS LIST								
<i>Yoke Sheave Housing and Fittings</i>								
2					S-1131		SHEAVE	2
2					1-10051		PIN	2
2					S-2115		RACE, bearing	2
2					S-1071		OIL SEAL	4
<i>Carriage Structure Sheave and Roller Fittings</i>								
3	A	957	1-22243		1-22243		ROLLER, push beam carriage	1
3	A	957	7-11926		7-11926		BEARING, push beam roller	2
3	A	957	1-12819		1-12819		PIN, roller, push beam	2
3	B	957	1-22335		1-22335		ROLLER, slide ram, carriage	2
3	B	957	7-11926		7-11926		BEARING	2
3	B	957	1-12845		1-12845		PIN, roller, slide ram	2
3	B	957	12878A		12878A		THRUST WASHER, slide ram roller	2
3	C	526	RA99212		S-1084		ROLLER ASSEMBLY, journal bearing	2
3	C	957	1-12810		1-12810		PIN, single groove sheave	2
3	C	957	1-22236		1-22236		SHEAVE	5
3	D	526	RA99212		S-1084		ROLLER ASSEMBLY, journal bearing	3
3	D	957	1-12814		1-12814		SHEAVE PIN, triple-type	1
3	D	957	1-22236		1-22236		SHEAVE	3
3	E	526	RA99212		S-1084		ROLLER ASSEMBLY, journal bearing	5
3	E	957	1-22341		1-22341		PIN, sheave, carriage hoist	1
3	E	957	1-22236		1-22236		SHEAVE	10
<i>Carriage Structure</i>								
5	1	957	10-40962		10-40962		SIDEMEMBER, bowl R. H.	1
5	2	957	9-40962		9-40962		SIDEMEMBER, bowl L. H.	1
5	3	957	1-22006		1-22006		BASE, blade	1
5	4	957	19-10140		19-10140		BLADE, scraper	1
5	5	913	43-2818.080.025	957	7-10369		BOLT, plow, steel	28
5	6	957	1-12250		22278A		BLADE, side cutter	2
5	7	913	43-2818.080.020	957	8-10369		BOLT, plow, steel	8
5	8	957	1-31510		1-31510		BEAM, spreader, front	1
5	9	957	1-40996		1-40996		PUSH BEAM	1
5	10	957	S-683		S-683		SPACER, carriage, structure	2
5	11	957	1-31514		1-31514		CARRIER, push block	1
5	12	957	1-31516		1-31516		BLOCK, push, carriage	1
5	13	957	1-12811		1-12811		PIN push block, carriage	1
5	14	957	6-12749		6-12749		PIN, roll, push block	1
5	15	957	1-479-A		1-479-A		PIN, safety, bottom	2
5	15	957	S-684		S-684		HOLDER	2
5	17	957	S-951		S-951		WEDGE, cable socket	1
5	17	957	S-952		S-952		SOCKET, carriage, cable	1
5	18	957	3-4X1-34	957	½ x 1¼ in.		SCREW, cap	12
5	19	957	8-41013		8-41013		BRACKET ASSEMBLY rear axle carrier	1
5	20	957	2-22380		2-22380		PLATE, hanger pad, R. H.	1
5	21	957	1-22380		1-22380		PLATE, hanger pad, L. H.	1

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
SECTION II. PARTS LIST—Con.								
<i>Carriage Structure—Continued</i>								
5	22	957	1-40976	957	1-40976		SPREADER ASSEMBLY, rear	1
5	23	957	1-11026	957	1-11026		WASHER, cable spool bolt	1
5	24	957	1-31512	957	1-31512		PLATE, slough	1
5	25	957	1-12876	957	1-12876		PLATE, bolting	2
5	26	957	1-31571	957	1-31571		BRACKET, roller, side ram: R. H.	1
5	26	957	1-31571	957	1-31571		BRACKET, roller, side ram: L. H.	1
5	27	957	1-31511	957	1-31511		FRAME, sheave, slide ram lead-in	1
5	28	957	1-31513	957	1-31513		FRAME, sheave block, carriage hoist	1
5	29	957	1R-31595	957	1R-31595		FENDER, R. H.	1
5		957	1-10992	957	1-10992		BOLT, cable spool	1
5		957	12554A	957	12554A		LINK, universal, bottom swivel	2
5		913	43-4600.100.080	957	1 in		NUT, slotted, steel, semifinished	2
5		914	45-2736.500.001	957	½ in		COUPLING, pipe	1
5		806	1610B	957	½ in		FITTING, lubrication	6
5		806	1612B	957	½ in. 60 deg		FITTING, lubrication	1
5		957	1-22380	957	1-22380		PLATE, L. H.	1
5		957	1-22380	957	1-22380		PLATE, R. H.	1
5		526	RA99212	957	S1084	151-8311	ROLLER ASSEMBLY, journal bearing.	6
5		957	1-12810	957	1-12810		SHAFT, single groove sheave	2
5		806	1610B	957	½ in		FITTING, lubrication	4
5		806	1612B	957	½ in. x 60 deg.		FITTING, lubrication	1
5		913	43-4600.150.060	957	1½ in	431-4353	NUT, slotted	2
5		957	1-22239	957	1-22239		PLATE, wear bottom	1
5		957	1-40978	957	1-40978		RAM, bottom-slide	1
5		957	1-22244	957	1-22244		ROLLER, front, bottom slide ram	2
5		957	3-8XINF	957	¾ x 1 in		SCREW, cap	8
5		957	3-8XINC	957	¾ x 1 in		SCREW, cap	4
5		957	1-12815	957	1-12815		SHAFT, triple sheave, bottom slide ram	1
5		957	1-22236	957	1-22236		SHEAVE, slide ram	3
5		957	8-11926	957	8-11926		RACE, bearing	2
5		957	1-40967	957	1-40967		BEARING, plain, sleeve	1
<i>Bottom Slide Ram, Assembly</i>								
6	1	957	1-40978	957	1-40978		RAM, bottom slide	1
6	2	957	1-22244	957	1-22244		ROLLER, front, bottom slide ram	2
6	3	526	RA99212	957	S-1084		ROLLER ASSEMBLY, journal bearing.	6
6	4	957	1-12818	957	1-12818		SHAFT, front roller, bottom slide ram.	2
6	7	957	1-22242	957	1-22242		ROLLER, rear, bottom slide ram	2
6	8	957	1-12241	957	1-12241		SHAFT, rear roller, bottom slide ram	2
6	9	957	1-12821	957	1-12821		RACE, sheave, roller bearing (inner)	2
6	14	957	1-22239	957	1-22239		PLATE, wear	1
6	18	957	1-12815	957	1-12815		SHAFT, triple sheave, bottom slide ram.	1
<i>Yoke Assembly</i>								
7	1	957	1-41023	957	1-41023		CROSS BOX	1
7	2	957	1-10992	957	1-10992		BOLT, cable spool	1
7	3	957	1-41028	957	1-41028		HORN, yoke	1
7	4	957	20255A	957	20255A		SOCKET, ball	1

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
							SECTION II. PARTS LIST—Con.	
							<i>Yoke Assembly—Continued</i>	
7	5				11-41025		FAIRLEAD, housing	1
7	6	957	1-22253		1-22253		FRAME, sheave block, cross box lead-in.	1
7	7	957	1-22254		1-22254		FRAME, sheave block, fixed slide	1
7	8	957	1-11026		1-11026		WASHER, cable spool bolt	1
7	9	957	1-22262		1-22262		COVER, end, cross box	2
7	10	957	12824A		12824A		NUT, thumb	2
7	12	967	1-22330		1-22330		FRAME, sheave block, cross box crossover.	1
7	13	957	1-22255		1-22255		FRAME, sheave block, apron crossover.	1
7	14	957	S-951		S-951		WEDGE, cable socket	1
7	15	957	8-40985		8-40985		HOUSING, sheave block apron idler and carriage hoist.	1
7	16	957	S-952		S-952		SOCKET, carriage cable	1
7	17	957	1-22256		1-22256		FRAME, sheave block, cross box sliding.	1
7	18	957	1-22259		1-22259		FRAME, sheave block, apron lead-in	1
7	20	957	W-213		W-213		FRAME, sheave block, yoke horn swivel.	2
7	21	957	S-40968		S-40968		ARM, yoke L. H.	1
7	22	957	12564A		12564A		BEARING, plain sleeve	1
7	23	957	1-40967		1-40967		ARM, yoke R. H.	1
7	24	957	12564A		12564A		BEARING, plain, sleeve	1
7	25	957	1-22232		1-22232		FRAME, sheave block	1
7	26	957	1-40971		1-40971		STIFFNER, yoke arm	1
7	27	957	1-22265		1-22265		PIN, yoke arm L. H.	2
7	28	957	13-40963		13-40963		BRACKET, arm yoke R. H.	1
7	29	957	8-40963		8-40963		BRACKET, arm yoke L. H.	1
7	29	957	11-40963		11-40963		BRACKET, arm close in plate L. H.	1
7	30				1-12693		LINK, transport	1
7	30				1-12209		PIN link	2
7	31	957	S-157		S-157		SPUD, swivel sheave housing, yoke horn, open.	2
7	32	957	S-158		S-158		SPUD, swivel sheave housing, yoke horn, closed.	2
7	33	957	S-437		S-437		ADJUSTER, swivel sheave bearing	4
7	34	957	3-8XINC	957	3/4 x 1 in.		SCREW, cap	4
7		957	1-41039		1-41039		YOKE HORN, cross box assembly	1
7		957	S982	957	S-982		CONE	4
7		957	S405	957	S-405		CUP	4
7		957	1-12812	957	1-12812		PIN, sheave, yoke arm	1
7		806	1613B	957	1/2 in. x 90-deg		FITTING, lubrication	1
7		806	1610B	957	1/2 in.		FITTING, lubrication	19
7		957	S2115	957	S2115		RACE, bearing, fairlead sheave	2
7		526	R199212	957	S-1084	151-6311	ROLLER ASSEMBLY, journal bearing.	19
7		367	5866	957	S-1071	250-5170	SEAL, plain encased	4
7		957	2-12812	957	2-12812		SHAFT, double sheave cross box sliding.	1
7		957	1-22238	957	1-22238		SHAFT, sheave, yoke	10
7		957	1-12810	957	1-12810		SHAFT, single groove sheave	12
7		957	1-10051	957	1-10051	447-9359	SHAFT, single sheave	1

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
SECTION II. PARTS LIST—Con.								
<i>Yoke Assembly—Continued</i>								
7		957	S1131	957	S-1131		SHEAVE	2
7		957	1-22236	957	1-22236		SHEAVE, slide ram	14
7		957	1-22237	957	1-22237		SHEAVE, yoke	3
7		957	S994	957	S-944		WASHER, dust swivel sheave	4
<i>Front Truck Assembly</i>								
8	1	957	1-41004		1-41004		TRUCK, front	1
8	2	957	3-20669		3-20669		AXLE AND HOUSING	2
8	3	957	20248A		20248A		BALL, axle socket	1
8	4	957	21827A		21827A		RING, socket	1
8	5	957	30953A		30953A		HITCH, casting	1
8	6	957	1-12355		1-12355		BEARING, plain, flanged	2
8	7	957	10110A3		10110A3		HOOK, lifting	1
8	11	806	1823		S1142		FITTING, lubrication (button head)	1
8	12	957	21612A		21612A		YOKE, hitch front truck	1
8	13	957	12232A		12232A		BLOCK, yoke towing hitch	1
8	14	957	1-12237		1-12237		PIN, hitch	1
8	15	913	43-4600 170 050	957	1½ in	431-4354	NUT, slotted	1
8	17	957	10182A		10182A		NUT, hitch yoke clevis	1
8	18	957	S-414		S-414		WASHER, clevis nut, hitch yoke	1
8		957	1-20675		1-20675		AXLE, front truck	
8		957	1-2473		1-2473		BLOCK, hitch	
8		957	12473A		12473A		BLOCK, hitch	1
8		957	21827A	957	21827A		RING, socket	1
<i>Bottom Assembly</i>								
9	1	957	1-40964		1-40964		BOWL, bottom	1
9	2	957	1-22234		1-22234		SPRING, bottom return	2
9	3	957	12554A		12554A		LINK, universal, bottom swivel	2
9	4	957	12555A		12555A		SWIVEL, universal, bottom return spring	1
9	5	957	2-10106		2-10106		PIN, straight, headless	4
9	7	957	1-12927		1-12927		SCREW, cap, universal link	2
9	8	957	1-12927		1-12927		SLOTTED NUT	2
9	9	957	2-12557		2-12557		PIN, swivel, straight headless	1
9	11	957	1-22239		1-22239		PLATE, wear, bottom	1
<i>Apron Assembly</i>								
10	1	957	1-31497	957	1-31497		APRON PAN	1
10	2	957	2-31498	957	2-31498		ARM, apron L. H.	1
10	3	957	1-31498	957	1-31498		ARM, apron R. H.	1
10	4	957	1-22378	957	1-22378		PIN, arm	2
10	5	957	12696A	957	12696A		BUSHING, pin, apron arm	2
10	6	957	1-12911	957	1-12911		PIN, lock, apron arm	2
10	7	806	1610B	957	¼ in		LUBRICATION FITTING	2
10	8	957	S951	957	S-951		WEDGE, cable socket	1
10		957	1-22248	957	1-22248		ROPE, apron hoist	1
10		957	38-10355	957	38-10355		ROPE, carriage hoist	1
10		957	1-12886	957	1-12886		ROPE, one roll 300 ft long	1

Fig. No.	Index No.	Engineer stock No.		Manufacturer's part No.		Federal supply class and item identification No.	Description	Quantity per unit
		Code No.	Part No.	Code No.	Part No.			
SECTION II PARTS LIST—Con.								
<i>Single Front Wheel</i>								
11	1	957	16.00 x 24				FLAP, tire, tube	2
11	2	957	S-1080	957	S-1080		FLANGE, wheel, outer	2
11	3	957	S-1081	957	S-1081		RING, retaining, wheel flange	2
11	4	957	1-10360	957	1-10360		COVER, handhole, wheel	2
11	6	892	772	957	S-376		CUP, bearing	4
11	6	892	776	957	S-376A		CONE AND ROLLERS, tapered roller bearings.	4
11	7	957	S-409	957	S-409		CAP, front wheel	2
11	10	892	K10438	957	S-407		WASHER, bearing	
11	12	892	K10340	957	S-406		NUT, lock	
11	13	957	1-10511	957	1-10511		GASKET, asbestos	
11	14	957	1-30985	957	1-30985		SINGLE FRONT WHEEL	2
11	15	957	713528	957	S-1072		SEAL, oil	2
11	16	957	1-20676	957	1-20676		RETAINER, oil seal, bearing (inside).	2
<i>Single Rear Wheel</i>								
12	1	957	16.00 x 24				FLAP, tire, tube	2
12	2	957	S-1080	957	S-1080		FLANGE, wheel, outer	2
12	3	957	S-1081	957	S-1081		RING, retaining, wheel flange	2
12	4	957	1-12354	957	1-12354		NUT, lock, U-bolt	8
12	5	957	S-372	957	S-372		BLOCK, axle, rear wheel	4
12	6	957	1-10360	957	1-10360		COVER, handhole, wheel	2
12	8	892	772	957	S-376		CUP, bearing	4
12	8	892	776	957	S-376A		CONE AND ROLLERS, bearing	4
12	9	957	1-20683	957	1-20683		RETAINER, oil seal, bearing (outside).	2
12	10				17-21816		NUT, NF	4
12	10				½ in x 2½ in		SCREW, cap, NF	4
12	11	957	1-22377	957	1-22377		AXLE, single rear	2
12	12	957	S-142	957	S-142		NUT, axle rear	2
12	13	957	1-10357	957	1-10357		PIN, dowel, wheel bearing dust seal	2
12	14	226	713528	957	S-1072		SEAL, oil	4
12	15	957	3-12690	957	3-12690		U-BOLT, steel	4
12	17	957	2-30985	957	2-30985		WHEEL, rear	2
12	18	957	1-20676	957	1-20676		RETAINER, oil seal, bearing (inside).	2
12	19	957	1-12907	957	1-12907		SPACER, axle block, rear wheel	4

[AG 413.8 9 Oct 53].

BY ORDER OF THE SECRETARY OF THE ARMY:

M. B. RIDGWAY,
*General, United States Army,
Chief of Staff.*

OFFICIAL:

WM. E. BERGIN,
*Major General, United States Army,
The Adjutant General.*

DISTRIBUTION:

Active Army:

Tech Svc (1); Tech Svc Bd (1); AFF (3); OS Maj Comd (2); MDW (2); Log Comd (2); A (5);
Brig 5 (1); Regt 5 (1); FT (1); Sch 5 (50); USMA (2); Gen Dep (2) except Columbus (10);
Dep 5 (10); POE (2), OSD (2); Ars (2); Engr Dist (1); Mil Dist (1); T/O & E's: 5-157A (2);
5-267 (2); 5-268 (1); 5-315 (3); 5-316 (3); 5-328A (2); 5-367 (2); 5-415A (8); 5-416A (1);
5-417A (6); 5-511 (3); 5-525 (2); 5-527 (1).

NG: None.

Army Reserve: None.

For explanation of distribution formula, see SR 310-90-1.

The first of these is the fact that the
 government has been unable to raise
 the necessary funds to carry out its
 policy. This is due to the fact that
 the public has lost confidence in the
 government and is unwilling to
 lend it money. The second is the
 fact that the government has been
 unable to raise the necessary funds
 to carry out its policy. This is
 due to the fact that the public has
 lost confidence in the government
 and is unwilling to lend it money.
 The third is the fact that the
 government has been unable to raise
 the necessary funds to carry out its
 policy. This is due to the fact that
 the public has lost confidence in the
 government and is unwilling to lend
 it money.

U. S. DOCUMENT
RECEIVED

DEC 29 1953

MICHIGAN STATE LIBRARY